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9
10 UNITED STATES DISTRICT COURT
11 NORTHERN DISTRICT OF CALIFORNIA
12 SAN FRANCISCO DIVISION

13 WAYMO LLC,

14 Plaintiff,

15 vs.

16 UBER TECHNOLOGIES, INC.;
17 OTTOMOTTO LLC; OTTO TRUCKING
18 LLC,

19 Defendants.
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27
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CASE NO. 3:17-cv-00939

**PLAINTIFF WAYMO LLC'S NOTICE OF
SECOND REILING OF DOCUMENTS
PURSUANT TO ORDER ON
COMPREHENSIVE ADMINISTRATIVE
MOTIONS TO FILE UNDER SEAL (DKT.
2685)**

1 In accordance with the Court's Order on Comprehensive Administrative Motions to File
2 Under Seal, Plaintiff Waymo LLC ("Waymo") hereby refiles public versions of the documents for
3 which sealing was denied in whole or in part, as modified pursuant to the Court's Order Granting
4 Plaintiff Waymo LLC's Motion for Reconsideration of Order on Comprehensive Administrative
5 Motions to File Under Seal. (*See* Dkt. 2699).

6
7 DATED: March 7, 2019

QUINN EMANUEL URQUHART & SULLIVAN,
LLP

8
9 By /s/ Jonathan S.M. Francis

Jonathan S.M. Francis
Attorneys for WAYMO LLC

EXHIBIT A
FILED UNDER SEAL

EXHIBIT 2

FILED UNDER SEAL

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

WAYMO LLC,

Plaintiff,

vs.

No. 3:17-cv-00939-WHA

UBER TECHNOLOGIES, INC.;

OTTOMOTTO LLC; OTTO TRUCKING,

INC.,

Defendants.

_____/

WAYMO & UBER CONFIDENTIAL ATTORNEYS' EYES ONLY

VIDEOTAPED DEPOSITION OF GREGORY KINTZ

SAN FRANCISCO, CALIFORNIA

WEDNESDAY, APRIL 26, 2017

BY: ANDREA M. IGNACIO, CSR, RPR, CRR, CCRR, CLR ~

CSR LICENSE NO. 9830

JOB NO. 2592507

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1	And in that Excel file, I computed the X/Y	12:08
2	separations using the Pythagorean theorem, as	12:08
3	previously discussed.	12:09

4 Q Okay. And the use of the Pythagorean theorem 12:09
5 to calculate separation, is that what you're calling 12:09
6 vertical separation in paragraph 33? 12:09

7 A The separation is the separation between the 12:09
8 individual components. The terminology of vertical, 12:09
9 yes, that is the separation between the 12:09
10 two components. 12:09

11 Q Okay. And I -- I just want to clarify. 12:09

12 So, earlier we were looking at the X/Y 12:09

13 coordinates for the GBr3. 12:09

14 Do you recall that? 12:09

15 A Yes.

12:09

16 Q By vertical separation, you're not talking 12:09
17 about just the delta or the difference between the Y 12:09
18 coordinates between two diodes then; is that correct? 12:09

19 A No. I was computing the -- both components. 12:09

20 Q Using both the X and Y coordinates? 12:09

21 A Yes.

12:10

22 Q And then there is this number [REDACTED] [REDACTED]

12:10

24 Do you see that in paragraph 33? 12:10

25 A Yes.

12:10

1 But let me ask you my next question, which 12:13
2 is: You also looked at the difference in angular 12:13
3 orientation as well? 12:13

4 A Correct. 12:13

5 Q And that was part of your determination as to 12:13
6 whether or not there was [REDACTED] [REDACTED]
[REDACTED]; correct? 12:13

8 MR. JAFFE: Objection; form. 12:13

9 THE WITNESS: There is -- as demonstrated by 12:13
10 the information in the pick-and-place file, that there 12:13
11 [REDACTED] [REDACTED]

[REDACTED] 12:14

13 MR. KIM: Q. So you could look at the 12:14

14 [REDACTED] [REDACTED]

[REDACTED] 12:14

16 A The angle information by itself would not 12:14
17 yield enough data to actually produce that 12:14
18 information. 12:14

19 Q Why not? 12:14

20 A Because angle only tells you position along a 12:14
21 line or a vector, and not -- doesn't give you the 12:14
22 secondary intersection point that defines a point. 12:14

23 Q And so you would need to look at both the 12:14
24 difference in angular orientation, as well as the 12:14
25 difference in the X and Y coordinates; correct? 12:14

1 A That is correct. 13:42

2 Q Okay. And in order to calculate the vertical 13:42

3 spacing between A0 and A1, how would you calculate 13:42

4 that using the X/Y coordinates there? 13:42

5 A The vertical spacing is related to its 13:42

6 position on the great circle relative to the lens. 13:42

7 And so I would take the difference in the X/Y 13:42

8 components and compute their separation, the 13:42

9 Pythagorean theorem. 13:42

10 Q Is that something you could do now between A0 13:42

11 and A1? 13:42

12 A Yes. 13:42

13 Q Okay. What -- what is the vertical 13:42

14 separation between those two? 13:42

15 A Do you have a calculator? 13:42

16 0 We do. 13:42

17 A Do you have a sheet of paper that I can write 13:42

18 on? 13:42

19 Q Yes. 13:42

20 A Do you have a pen that I can write with? 13:43

21 0 Sure.

13:43

22 A (Witness complies.) 13:43

23 I come up with [REDACTED] with 13:46

24 rounding to the third significant digit. 13:46

25 Q And what does that number represent? 13:46

1 THE WITNESS: No. With the data that you've 13:55
2 given me right here at this time, with the equipment 13:56
3 that's available to me, I cannot make a determination. 13:56

4 MR. KIM: Q. And what would you need to make 13:56
5 that determination? 13:56

6 A I would need to have information that gave me 13:56
7 the locations of the features on this board. This is 13:56
8 a fabrication document that lays out the layers of the 13:56
9 board and the relative positions of the bond pads on 13:57
10 the surface of the board, but does not really disclose 13:57
11 any information on the actual positions of the 13:57
12 components. 13:57

13 Q And the same would be true for Exhibit 1043 13:57
14 that you were just looking at before that? 13:57

15 A No. 1043 actually has component information 13:57
16 on it. 13:57

17 Q Okay. And what would you need to determine 13:57
18 whether or not the [REDACTED] [REDACTED]
[REDACTED] for the board depicted in Exhibit 1043? 13:57

20 A Ideally, I would need a way of expanding the 13:57
21 image and creating center line information between the 13:58
22 placed components in their ideal location and the 13:58
23 adjacent one, and from that information, computing the 13:58
24 data. 13:58

25 I frequently do that type of analysis in 13:58

1 graphics programs. I in particular use a program 13:58
2 called CorelDRAW that allows me to do this type of 13:58
3 detailed point-by-point analysis. 13:58

4 Q And that would be for the purpose of 13:58
5 determining the X/Y coordinates and the theta? 13:58

6 A That's correct. 13:58

7 Q And you didn't do that for the board depicted 13:58
8 in Exhibit 1043; correct? 13:58

9 A That's correct. 13:58

10 Q Okay. 13:58

11 (Document marked Exhibit 1045 13:58

12 for identification.) 13:59

13 MR. KIM: I have the same question for 13:59

14 Exhibit No. 1045, which bears Bates No. Uber00008610. 13:59

15 Q Does this exhibit depict [REDACTED] [REDACTED]

[REDACTED] 13:59

17 A This document is an assembly document. So 13:59

18 the positions -- so the actual components should be 13:59

19 shown in the printout. And again, I would need to 13:59

20 expand the figure to make a determination of the 13:59

21 relative position. 13:59

22 Q So sitting here today, you can't tell me 13:59

23 whether or not the board depicted in Exhibit 1043 has 13:59

24 [REDACTED] -- 13:59

25 MR. JAFFE: 1045, I'm assuming you're asking 13:59

EXHIBIT B
FILED UNDER SEAL

EXHIBIT 2

UNREDACTED VERSION

OF DOCUMENT

SOUGHT TO BE SEALED

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

---oOo---

WAYMO LLC,

Plaintiff,

vs.

No. 3:17-cv-00939-WHA

UBER TECHNOLOGIES, INC.;

OTTOMOTTO LLC; OTTO TRUCKING,

INC.,

Defendants.

-----/

HIGHLY CONFIDENTIAL ATTORNEYS' EYES ONLY

WAYMO LLC RULE 30(b)(6)
VIDEOTAPED DEPOSITION OF PIERRE-YVES DROZ
PALO ALTO, CALIFORNIA
THURSDAY, AUGUST 3, 2017

REPORTED BY:

ANDREA M. IGNACIO, CSR, RPR, CRR, CCRR, CLR ~

CSR LICENSE NO. 9830

JOB NO. 2663199

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[illegible]

[illegible]

CERTIFICATE OF REPORTER

I, ANDREA M. IGNACIO, hereby certify that the witness in the foregoing deposition was by me duly sworn to tell the truth, the whole truth, and nothing but the truth in the within-entitled cause;

That said deposition was taken in shorthand by me, a disinterested person, at the time and place therein stated, and that the testimony of the said witness was thereafter reduced to typewriting, by computer, under my direction and supervision;

That before completion of the deposition, review of the transcript [x] was [] was not requested. If requested, any changes made by the deponent (and provided to the reporter) during the period allowed are appended hereto.

I further certify that I am not of counsel or attorney for either or any of the parties to the said deposition, nor in any way interested in the event of this cause, and that I am not related to any of the parties thereto.

Dated: August 4, 2017

A handwritten signature in blue ink, appearing to read 'Andrea M. Ignacio', is written over a horizontal line.

ANDREA M. IGNACIO,

RPR, CRR, CCRR, CLR, CSR No. 9830

EXHIBIT C
FILED UNDER SEAL

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and OTTOMOTTO LLC

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

WAYMO LLC,

Plaintiff,

v.

UBER TECHNOLOGIES, INC.,
OTTOMOTTO LLC; OTTO TRUCKING
LLC,

Defendants.

Case No. 3:17-cv-00939-WHA

**DEFENDANTS UBER TECHNOLOGIES,
INC. AND OTTOMOTTO LLC'S RESPONSE
TO WAYMO'S PRECIS IN SUPPORT OF
ITS REQUEST TO FILE A MOTION FOR
RELIEF BASED ON DEFENDANTS'
LITIGATION MISCONDUCT**

Date: TBD
Time: TBD
Ctmm: 8, 19th Floor
Judge: Honorable William H. Alsup
Trial Date: February 5, 2018

UNREDACTED VERSION OF DOCUMENT SOUGHT TO BE SEALED

Nothing in Waymo's 50-page offer of "proof" with five binders of exhibits warrants any sanction. Yet Waymo wants to file another motion to substitute sanctions for evidence—because it cannot prove its trade secret claims. That request should be denied. This case should be tried on its merits instead of unwarranted inferences based on irrelevant innuendo. The issues Waymo raises have been briefed extensively, and the Jacobs allegations do not provide any reason to brief them further. As Uber's response to Waymo's Offer of Proof will make clear, discovery into the Jacobs allegations has confirmed that there is nothing relevant to the eight trade secrets at issue. Enough is enough. It is time for Waymo to stop whining, and try its case.

I. TERMINATING SANCTIONS ARE NOT WARRANTED.

Waymo came to this Court with trumpets blaring, declaring that it had slam dunk evidence of trade secret theft. When discovery confirmed that was not true, Waymo decided to raise a series of excuses, based on false allegations of discovery and other abuses, designed to have this Court bail them out. This Court should not do so. Waymo obtained extensive discovery into the Jacobs allegations—17 depositions and over 16,000 pages of documents. None of this turned up any wrongdoing connected to Waymo, much less the specific trade secrets at issue. As Uber's response will show, no one in Uber's self-driving group engaged in the misconduct alleged by Jacobs, including the use of non-attributable devices, anonymous servers, or knowingly improper attorney-client privilege designations. There is simply no evidence that Waymo was prejudiced in any way because any relevant evidence was hidden or destroyed. FED. R. CIV. P. 37(e)(1).

The same is true of ephemeral messaging. Uber employees were instructed that if they were subject to a litigation hold, they should not use ephemeral communications to discuss anything covered by the hold. (Declaration of Camila Tapernoux Exhibits ("Exs.") A-D.) There is no evidence that ephemeral messaging was used for discussing anything relevant to this case. (Exs. C, E.) Moreover, Waymo employees have used ephemeral messaging as a matter of course since the company's founding, and Google employees have used it for a decade. (Ex. F.) Google's decision to default to ephemeral messaging arose because it [REDACTED] [REDACTED] (Ex. G.) Google has even argued in prior litigation (1) that a default setting to not retain chats comported with "accepted, widespread,

1 and reasonable industry standards” and was “consistent with the nature of these communications”
 2 (Ex. H, ¶ 8), as well as (2) that Google’s default “off-the-record” setting for its chat was not
 3 improper and did not support a finding of spoliation, because such chats were akin to “hallway
 4 conversation[s]” and the proper avenue for discovery regarding these messages was depositions.
 5 (Ex. I, *Function Media v. Google*, No. 2007-CV-279, No. 483 at 155:17-156:12 (E.D. Tex. Oct.
 6 21, 2010) (post-trial motions hearing on spoliation).) Like Uber, Google has instructed
 7 employees subject to an existing litigation hold to change individual chat settings to “on the
 8 record” for communications subject to a litigation hold. (Ex. H; Ex. I at 154:15-20.)

9 The precedent on which Waymo relies does not support sanctions. To the contrary, the
 10 relevant case law highlights that Waymo’s request is improper. First, a request for terminating
 11 sanctions may only be granted upon a finding of willfulness, bad faith, or fault—a standard
 12 Waymo tellingly fails to identify, let alone provide evidence of. *See Brookhaven Typesetting*
 13 *Serv., Inc. v. Adobe Sys., Inc.* 332 Fed. App’x 387, 389 (9th Cir. 2009) (“Where the drastic
 14 sanctions of dismissal or default are imposed ... the losing party’s noncompliance must be due to
 15 willfulness, fault, or bad faith.”) (affirming that terminating sanctions were not warranted);
 16 *Mitchell v. Acumed, LLC*, No. 11-CV-00752 SC (NC), 2012 WL 761705, at *2 (N.D. Cal. Mar. 8,
 17 2012 (“sanction orders taking the plaintiff’s allegations as established and awarding judgment on
 18 that basis are the most severe penalty To justify the imposition of such a harsh sanction, the
 19 court must find the violations were due to willfulness, bad faith, or fault of the party.”) (internal
 20 citations omitted); *Mech. Mktg., Inc. v. Sixxon Precision Mach. Co.*, No. C 11-1844 EJD PSG,
 21 2013 WL 1563251, at *2-3 (N.D. Cal. Apr. 12, 2013) (denying sanctions that “would have the
 22 effect of entering partial judgment for [plaintiff], at least on the issue of damages[,]” noting that a
 23 “terminating sanction is considered very severe and should only be imposed if the party acted
 24 with willfulness, bad faith, and fault.”) (internal citation omitted); *Network Appliance, Inc. v.*
 25 *Bluearc Corp.*, No. C 03-5665 MHP, 2005 WL 1513099, at *3 (N.D. Cal. June 27,
 26 2005), *aff’d*, 205 F. App’x 835 (Fed. Cir. 2006) (“the imposition of preclusive sanctions may be
 27 tantamount to dismissal of a plaintiff’s claims or entry of default judgment against a
 28 defendant. Under those circumstances . . . a showing of bad faith is required.”) (internal citation

omitted); *Nuance Commc'ns, Inc. v. ABBYY Software House*, No. C 08-02912 JSW (MEJ), 2012 WL 5904709, at *2 (N.D. Cal. Nov. 26, 2012) (denying jury instruction to take as established that defendant copied trade dress, which would be “tantamount to [granting] a directed verdict...”).

Waymo cannot make the requisite showing of bad faith. *See, e.g., Network Appliance*, 2005 WL 1513099 at *1 (denying sanctions upon finding of no bad faith where defendant did not produce responsive damages documents earlier because “its [CFO] had concluded that ... [they] were not responsive”). Even if it could, its request would fail upon consideration of the five factor balancing test. The “key factors are prejudice and availability of lesser sanctions.” *Wanderer v. Johnston*, 910 F.2d 652, 656 (9th Cir. 1990). As discussed above, Waymo has not suffered prejudice, especially to the extent reflected in cases where this factor weighed in favor of granting sanctions. Waymo has had the opportunity to conduct full discovery into the evidence at issue, which courts in this district agree is sufficient to remedy any potential prejudice from belated discovery. *Mitchell* 2012 WL 761705 at *3 (finding no prejudice from discovery delay because trial was continued); *Nuance Commc'ns, Inc. v. ABBYY Software House*, No. C 08-02912 JSW MEJ, 2012 WL 5904709, at *3 (N.D. Cal. Nov. 26, 2012) (denying motion for issue preclusion sanctions due to late productions where “a discovery extension would have alleviated any prejudice that was caused by Defendants’ malfeasance, and, most importantly, permitted the Court and a jury to resolve Plaintiff’s trade dress claims on the merits.”). Waymo has also not suffered prejudice because, as Uber’s Response to Waymo’s Offer of Proof will show, the evidence at issue was of minimal if any relevance. *Keithley v. Homestore.com, Inc.*, No. C-03-04447 SI (EDL), 2009 WL 55953, at *3 (N.D. Cal. Jan. 7, 2009) (denying sanctions due to finding of no prejudice where late-produced documents had “little if any relevance to [the] case”).

The cases on which Waymo relies to argue for prejudice are readily distinguishable. In *Valley Engineers Inc. v. Electric Engineering Co.*, the evidence at issue was a “smoking gun.” 158 F.3d 1051, 1054 (9th Cir. 2000). Here, as this Court has repeatedly observed, there is no smoking gun. No one in ATG used non-attributable devices or anonymous servers. While there was limited gathering of publicly-available information about Waymo, Waymo points to no evidence of any trade secret misappropriation—because there was none. (Tapernoux Decl., Exs.

J-M (Russo at 20:18-21:7, 37:20-38:18; Henley at 106:16-20, 107:15-23, 108:4-6; Nocon at 45:9-19; Gicinto at 145:12-19, 208:15-24, 281:16-282:16).) Additionally, the *Valley Engineers* court found that the severity of the defendant's conduct in hiding and lying about the document intentionally throughout the litigation warranted severe sanctions because it "so damage[d] the integrity of the discovery process that there [could] never be assurance of proceeding on the true facts." 158 F.3d at 1059. Similarly, in *Fair Housing of Marin v. Combs*, defendant "misrepresented to both counsel and to the district court that the documents did not exist" when in fact "[t]he documents were in Combs' one-bedroom apartment." 285 F.3d 899, 905-906 (2002) There is no such evidence here. Waymo also relies on *Fair Housing of Marin* and *Henry* for the proposition that a last-minute production does not cure prejudice. (Dkt. No. 2472 at 2-3.) But, unlike here, the parties in those cases did not have the opportunity to conduct discovery into the late-produced evidence. Waymo obtained extensive follow-up discovery here, and the cases cited above make clear that such an opportunity remedies any potential prejudice.

The availability of less drastic sanctions also weighs against granting terminating sanctions. Waymo's case, *Alexsam, Inc. v IDT Corp.*, 715 F.3d 1336 (Fed. Cir. 2013), applies a far more lenient standard from the Fifth Circuit. Further, in that case, the defendant had already received less drastic sanctions, yet continued to not comply with its obligations; it was then twice warned of the risk of future sanctions before the court granted terminating sanctions. *Id.* at 1344.

Waymo misleadingly claims that one of the continuances "has been determined to have resulted from the intentional concealment of evidence." (Dkt. No. 2472-3 at 2:19 (Waymo Precis).) There is no citation to any such "determination," nor could there be. And, the public policy favoring disposition of cases on their merits strongly outweighs the remaining factors here. Waymo should not be permitted to bypass the utter lack of evidence of misappropriation of the eight trade secrets at issue via a sanction based on meritless and exaggerated allegations.

II. REMEDIAL JURY INSTRUCTIONS ARE NOT NECESSARY.

This issue has already been extensively briefed. (*See* Dkt Nos. 1591-4, 2240-4, and 2804.) As noted there, and as will be discussed further in Uber's response to Waymo's Offer of Proof, Uber has not violated any Court Orders or destroyed evidence. Remedial jury instructions

1 are not warranted. Waymo should try its case on the merits and should not be permitted to use
2 irrelevant allegations to influence the jury into finding wrongdoing where there is none.

3 **III. EVIDENTIARY SANCTIONS ARE NOT WARRANTED.**

4 Waymo points to no specific concealment of evidence that has compromised its
5 evaluation of Uber's independent development such that evidentiary sanctions are warranted.
6 First, Uber substantially complied with its logging obligation. (Dkt. 1591-4 at 2 (Uber conducted
7 over 170 interviews, reviewed over 25,000 documents and spent over 700 hours preparing the
8 "LiDAR log," and voluntarily included references not just to LiDAR but to lasers, lenses, and
9 point clouds, as well as communications where others may have mentioned LiDAR and related
10 concepts to Mr. Levandowski.). Second, Uber legitimately asserted privilege over the Stroz
11 materials, and it was not in a position to unilaterally waive the privilege when Mr. Levandowski
12 continued to assert it. *United States v. Gonzalez*, 669 F.3d 974, 982 (9th Cir. 2012) ("the case law
13 is clear that one party to a JDA cannot unilaterally waive the privilege for other holders."). And
14 in another half-truth, Waymo complains that it did not receive the Stroz materials "until after the
15 close of fact discovery," but fails to mention that Mr. Levandowski, not Uber, appealed this
16 Court's ruling on that issue. Waymo also conveniently omits that it received ample discovery
17 into the Stroz diligence after the Federal Circuit ruled. Lastly, in a final half-truth, Waymo
18 complains that it was not able to question two Uber engineers (Mr. Haslim and Mr. Boehmke)
19 about the Stroz materials. But they fail to mention that they only requested to depose a different
20 engineer, Mr. Gruver, about the Stroz materials. Waymo never asked to depose Mr. Haslim or
21 Mr. Boehmke after the Stroz report was released.

22 **IV. ADDITIONAL TIME AT TRIAL IS NOT WARRANTED.**

23 Waymo should not be given additional time at trial to do nothing more than present more
24 baseless allegations of discovery misconduct in an effort to mislead the jury into thinking Waymo
25 has an actual case. Nothing has emerged from the Jacobs letter that warrants inclusion at trial, as
26 discussed above and as will be detailed in Uber's response to Waymo's Offer of Proof. The
27 remaining factors to which Waymo points—the due diligence process and the Ottomotto and Tyto
28 transactions—were known when the Court set the initial time allocations that Waymo agreed to.

1 Dated: January 14, 2018

MORRISON & FOERSTER LLP

2
3 By: /s/ Arturo J. González

4 ARTURO J. GONZÁLEZ

5 Attorneys for Defendants
6 UBER TECHNOLOGIES, INC. and
7 OTTOMOTTO LLC
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EXHIBIT D
FILED UNDER SEAL

EXHIBIT 5
FILED UNDER SEAL

Message

From: Drew Bagnell [dbagnell@uberatc.com]
Sent: 3/19/2016 1:16:34 PM
To: John Bares [bares@uberatc.com]; Brian Zajac [bzajac@uberatc.com]
Subject: Re: NewCo LIDAR specs

There absolutely are; we pointed this out a lot in Dragonfly design.

Options:

1) Continue down current path which will rely on camera to pull those out and have a backup ladar that is strictly better and can handle all our situations for even higher speed. Not enough density for understanding things far away, but enough to detect that they are there.

2) Improve our ladar quality at very narrow FOV, far range dramatically-- even to even detect objects against clutter; but have no fallback if our Plan A sputters, and a worrisomely sparse pattern elsewhere.

I think we need to bang smart heads against this and decide; there are definite pros and cons of each-- it's not a slam dunk, but it's sure better than not having options!

--d

On Sat, Mar 19, 2016 at 6:06 AM John Bares <bares@uberatc.com> wrote:

FWIW Drew. My California guy says [REDACTED]
[REDACTED] I have some
diagrams to share.

From: Brian Zajac [mailto:bzajac@uberatc.com]
Sent: Friday, March 18, 2016 8:07 AM
To: Drew Bagnell
Cc: John Bares
Subject: Re: NewCo LIDAR specs

Sounds good. Thanks for the update, Drew.

John, can you please send us the sanitized specifications for both LIDAR? I'd like to get Pete going on layout and performance simulation ASAP so that we can validate and steer their design requirements. Thanks!

- BZ

On Fri, Mar 18, 2016 at 11:00 AM, Drew Bagnell <dbagnell@uberatc.com> wrote:

Brian,

JB and I had a short, but really good, chat about this yesterday. He definitely sees the value in moving the 360 up--- the good news is that all of the work right now goes for either.

I think we all sit down and make this decision together in a few weeks based on the trade-offs based on the conversation.

--d

On Tue, Mar 15, 2016 at 3:21 PM, Brian Zajac <bzajac@uberatc.com> wrote:

Hi John,

Can you please send me the specifications for the NewCo LIDARs for distribution to a small "need to know" group of the Dragonfly team? We will start a conceptual layout and evaluation of their expected performance against our use cases and requirements ASAP. Our goal is to provide early feedback to help direct early development.

Also, Drew and I were wondering if the current priority of driving LIDAR vs. 360 LIDAR makes sense or can be changed. Would we rather have a Velodyne alternative sooner given it enables 45 mph operation and almost 50% of all Uber rides? Just a thought.

Thanks!

- BZ

EXHIBIT E
FILED UNDER SEAL

EXHIBIT 4
FILED UNDER SEAL

Message

From: Anthony Levandowski [a@ot.to]
Sent: 4/30/2016 7:28:42 AM
To: Gaetan@ot.to
Subject: Fwd: Our quote and payment terms (Takashi at Nalux)
Attachments: 160429_Quote for Mr Fast Lens.pdf

FYI ;-)

----- Forwarded message -----

From: Takashi Nakagawa <[REDACTED]>
Date: Friday, April 29, 2016
Subject: RE: Our quote and payment terms (Takashi at Nalux)
To: Daniel Gruver <daniel@ot.to>
Cc: 岡田 真 <[REDACTED]>, Anthony Levandowski <a@ot.to>, 小田垣 琢也 <[REDACTED]>, 松尾 剛志 技師 <[REDACTED]>, [REDACTED]

Dear Daniel

Thank you for your message. I shared your material information as well coating information to Okada-san and engineering team. Pardon me for taking time.

1) Quote

Please find out quote. This pretty much aligned with the program we work together at your previous company.

2) Payment Terms and PO

Regarding payment terms and PO, our proposal is below. Let me know your thought if this is acceptable to you, please.

NRE

- We'd like to receive Tooling and tray charge in advance payment prior to tool kick off.

Lens

- Confirmed L/C at sight amount for 50Kpcs every 6months with PO covering 100Kpcs (annual demand)* we'd like to receive based on projection you shared with us.

Now~Q1, 2017 100Kpcs*

Q2, 2017~Q, 2018 100Kpcs

Q1, 2019~ 250Kpcs/Year

Wish you have relaxing weekend!

P.S.

We have a week long holiday called Golden Week starting from yesterday. It started out sort of weird weather like Scotland windy, rain and sunny spell patterns come and go one after another in frequent cycles.

We have gorgeous weather today. Fresh greens on trees are literally shining and radiating nerve soothing beam to purify me. I just returned from morning walk. This is one of the best time of the year till we have unpleasant rain season in June.

Best regards,

Takashi

Takashi Nakagawa

Nalux Corp. Ltd.

Yamazaki 2-1-7, Shimamoto-cho, Mishima-gun, Osaka, Japan 618-0001

[REDACTED]

[REDACTED]

<http://www.nalux-world.com>

From: Daniel Gruver [<mailto:daniel@ot.to>]

Sent: Thursday, April 21, 2016 3:33 AM

To: Takashi Nakagawa

Cc: 岡田 真; Anthony Levandowski; 小田垣 琢也; 松尾 剛志 技師; [REDACTED]

Subject: Re: Timeline for tooling and DFM 0420(Takashi at Nalux)

Hi Takashi -

Thank you for the DFM notes. So far they all look reasonable You've correctly identified that [REDACTED]

I'll also work to clean up the part model to be in line with your DFM guidelines and requests.

For the part name we'd like to go with Mr Fast Lens (as in "Mister Fast Lens", although [REDACTED]
[REDACTED]. The material will be [REDACTED] I have not yet simulated performance with an AR coating
vs without but I think we'll be able to use lenses without any coating on them. Also the simulations look tolerant
to some optical deviations and defects so we should be able to use relaxed tolerances for the optical surfaces.

For credit and payment we're still working to acquire credit letters but until then we'll pay via check or bank
transfer and can provide deposits as early as needed to secure tooling and press timing.

I'll work on the lens design and submit an updated model for review in the coming days. Let us know if we can
send a deposit to secure tooling and commit to starting the project.

Thank you for the help,

Daniel

On Tue, Apr 19, 2016 at 7:43 PM, Takashi Nakagawa <[REDACTED]> wrote:

Dear Daniel

Hello, Daniel. Thank you for your time to speak with me last Saturday. Pardon me for taking time to send you the
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- Currently we have secure [REDACTED] processing slot in June. That makes FOT parts available Mid/Aug.
- Another 4weeks or so required from FOT if compensation is required(We didn't need compensation for G FAC program.)

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Takashi Nakagawa

Nalux Corp. Ltd.

Yamazaki 2-1-7, Shimamoto-cho, Mishima-gun, Osaka, Japan 618-0001

[REDACTED]

[REDACTED]

<http://www.nalux-world.com>

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Daniel Gruver / Engineer / Otto / daniel@ot.to / [REDACTED]

EXHIBIT F
FILED UNDER SEAL

EXHIBIT 18
SEALED

Message

From: Anthony Levandowski [a@ot.to]
Sent: 4/30/2016 7:28:42 AM
To: Gaetan@ot.to
Subject: Fwd: Our quote and payment terms (Takashi at Nalux)
Attachments: 160429_Quote for Mr Fast Lens.pdf

FYI ;-)

----- Forwarded message -----

From: Takashi Nakagawa <[REDACTED]>
Date: Friday, April 29, 2016
Subject: RE: Our quote and payment terms (Takashi at Nalux)
To: Daniel Gruver <daniel@ot.to>
Cc: 岡田 真 <[REDACTED]>, Anthony Levandowski <a@ot.to>, 小田垣 琢也 <[REDACTED]>, 松尾 剛志 技師 <[REDACTED]>, f [REDACTED]

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[REDACTED]

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Takashi Nakagawa

Nalux Corp. Ltd.

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<http://www.nalux-world.com>

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Daniel Gruver / Engineer / Otto / daniel@ot.to / [REDACTED]

EXHIBIT G
FILED UNDER SEAL

EXHIBIT 2
FILED UNDER SEAL

**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION**

WAYMO LLC

Plaintiff,

vs.

**UBER TECHNOLOGIES, INC.;
OTTOMOTTO LLC; OTTO
TRUCKING LLC**

Defendants.

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CASE NO. 3:17-cv-00939-WHA

REBUTTAL EXPERT REPORT OF WALTER BRATIC

September 7, 2017

Respectfully submitted,



Walter Bratic

**CONFIDENTIAL – ATTORNEYS’ EYES ONLY
SUBJECT TO PROTECTIVE ORDER**

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I. QUALIFICATIONS

1. I am a Managing Director of OverMont, a division of Whitley Penn LLP (“Whitley Penn”). I am a Certified Public Accountant licensed to practice in the State of Texas. I have provided financial consulting services to businesses throughout my career. I have testified in federal district courts, U.S. Bankruptcy Court, The U.S. Court of Claims, and in state courts as well as in private domestic and international arbitrations, on economic, financial, accounting, statistical, and business matters involving damages and valuation related matters. My resume, including my current and past employment and professional affiliations, are attached as Exhibit 1 to this report. A list of my testimony during the last four years is attached as Exhibit 2. Whitley Penn is being compensated at an hourly rate of \$625 for my work performed in connection with this matter. Whitley Penn’s fees are not contingent upon the outcome of this litigation.

II. ASSIGNMENT AND SCOPE OF ENGAGEMENT

2. I have been retained by counsel for Uber Technologies, Inc. (“Uber, Inc.”) and Ottomotto LLC (“Ottomotto”) (collectively, “Uber”) to review and respond to the analysis, opinions, and conclusions set forth in the Expert Report of Mr. Michael Wagner, dated August 24, 2017 (the “Wagner Report”).¹ I have also been asked to determine the economic damages that Waymo LLC (“Waymo”) purportedly suffered, if any, as a result of the alleged wrongful conduct of Uber and Otto Trucking LLC (“Otto Trucking”) (collectively, “Defendants”), as set forth in Waymo’s First Amended Complaint.² Specifically, Waymo brought the following causes of action against Defendants:³

- Violation of Defend Trade Secrets Acts (“DTSA”);
- Violation of California Uniform Trade Secrets Act (CUTSA); and

¹ I collectively refer to Ottomotto and Otto Trucking herein as “Otto”.

² First Amended Complaint, March 10, 2017 (“Amended Complaint”).

³ Amended Complaint. I understand that claims related to Violation of California Bus. & Prof. Code § 17200 are no longer being asserted.

- Infringement of U.S. Patent No. 9,368,936 (the “‘936 Patent”).⁴

3. I understand Uber disputes Waymo’s allegations in this case. However, for purposes of analyzing the purported economic damages, if any, Waymo suffered as a result of Uber’s alleged wrongful conduct, I have been asked to assume that Uber engaged in the wrongful conduct as alleged. I understand that Waymo has alleged that Uber misappropriated nine trade secrets (i.e., Nos. 2, 7, 9, 13, 14, 25, 90, 96, and 111) (the “Waymo Purported Trade Secrets”), which are discussed in detail in Section VII (A) below.⁵

4. This expert report sets forth my opinions based on the information available to me as of the date of this report. The analyses and opinions contained herein are subject to revision or supplementation, as necessary, if additional information is made available to me subsequent to the issuance of this report. Furthermore, I may develop demonstrative exhibits related to my analysis and opinions for use at trial as an aid to the trier-of-fact.

III. INFORMATION REVIEWED

5. In connection with this report, Whitley Penn professionals, working under my supervision and direction, and I have reviewed certain documents, information, and testimony in this matter. The information reviewed and considered is identified in Exhibit 3 to this report, as well as the body and footnotes of this report and attached exhibits. In addition, I interviewed the following individuals:

- Dr. Paul McManamon, Uber technical expert in this matter;
- Dr. Michael Lebby, Uber technical expert in this matter;
- Mr. John Bares, Manager (Tiger Team) at Uber;
- Mr. James Haslim, Senior Manager, Engineering for ATG at Uber; and

⁴ The Amended Complaint included allegations that Defendants infringed three additional patents, which were subsequently dismissed. Amended Complaint; and Joint Stipulation and Order Regarding Dismissal of Patent Claims.

⁵ Case 3:17-cv-00939-WHA, Document 563; and Plaintiff Waymo LLC’s Notice Regarding Trade Secret Narrowing.

- Prashant Chouta, Global Product Operations - Self Driving Vehicles at Uber.

IV. SUMMARY OF OPINIONS

6. My opinions are based on the assumption that the Waymo Purported Trade Secrets, as described below, are proven to be trade secrets and are shown to have been misappropriated and used to benefit Uber. I understand that Uber vigorously dispute Waymo's allegations. As of the date of issuance of this report, it is my understanding that Waymo has not provided a basis for its allegations that the purported trade secrets were used to the benefit of Uber.

A. Rebuttal Opinions Regarding the Wagner Report

7. Based on my review and analysis of the documents, information, and testimony in this matter, the interviews which I conducted, and my education, training, and experience in intellectual property matters, it is my opinion that the analysis and opinions expressed in the Wagner Report are conceptually flawed, grossly overstate any purported damages Waymo allegedly suffered, and are unreliable. More specifically:

- Mr. Wagner's opinions regarding the purported unjust enrichment Uber realized as a result of allegedly misappropriating the Waymo Purported Trade Secrets are unreliable and grossly overstate Uber's unjust enrichment, if any;
- Mr. Wagner's opinion regarding the reasonable royalty that is purportedly necessary to adequately compensate Waymo is unreliable and grossly overstates reasonable royalty damages, if any; and
- Mr. Wagner's opinion regarding the purported irreparable harm Waymo will suffer in the future as a result of the alleged misappropriation of the Waymo Purported Trade Secrets is speculative and unreliable.

B. Affirmative Opinion – Alleged Misappropriation of the Waymo Purported Trade Secrets

i. Unjust Enrichment Damages

8. Based on my review and analysis of the documents, information, and testimony in this matter, the interviews which I conducted, and my education, training, and experience in intellectual property matters, it is my opinion that Uber has not been unjustly enriched by their alleged misappropriation of the Waymo Purported Trade Secrets. However, I have been asked to provide a calculation of unjust enrichment damages based upon the assumption that Uber has utilized the Waymo Purported Trade Secrets and have benefited from such use. As a result, under this assumption, Uber's unjust enrichment, if any, would be limited to the cost savings realized by Uber from its alleged misappropriation of the Waymo Purported Trade Secrets. I have calculated Uber's unjust enrichment to be no more than \$605,000, based upon the costs to independently develop the accused features of Uber's in-house light detection and ranging ("LiDAR") system, referred to by Uber as "Fuji" that allegedly incorporate the Waymo Purported Trade Secrets. The following table provides a breakdown of these development costs by alleged trade secret:

Cost to Independently Develop Waymo's Purported Trade Secrets	
	Total Cost
Purported Trade Secret	
No. 2	\$208,920
No. 7	43,600
No. 9	112,160
No. 13 and 14	126,080
No. 25	No Value
No. 90	No Value
No. 96	114,040
No. 111	200
Total	<u>\$605,000</u>

9. As discussed above, this represents the maximum benefit Uber allegedly received as a result of its alleged misappropriation of the Waymo Purported Trade Secrets. This amount is also conservative for the reasons discussed below.

ii. Reasonable Royalty Damages

10. My analysis of a reasonable royalty rate for a license to the Waymo Purported Trade Secrets is based on the construct of a hypothetical negotiation between Waymo and Uber that would have occurred on or about the time of first misappropriation (i.e., between December 2015 and August 2016). Based on the procedures performed to date, my review and analysis of the documents produced in connection with this matter, as well as my education, training, and experience in intellectual property matters, it is my opinion that the parties would have agreed upon a reasonable royalty rate of no more than \$605,000 based on the maximum cost Uber would incur to independently develop the Waymo Purported Trade Secrets.

iii. Alleged Infringement of the '936 Patent

11. As of the date of issuance of this report, Plaintiff has not provided a damages opinion related to the teachings of the '936 Patent. I understand that Uber implemented a design around and such design around has not been alleged to infringe the '936 Patent. As a result, I have seen no evidence of any benefit received by Uber from its alleged infringement of the '936 Patent, which would significantly limit the amount of money Uber would be willing to pay for rights to the '936 Patent. Therefore, I agree with Mr. Wagner's implicit conclusion that there are no damages related to the '936 Patent. However, I disagree that there is any prospect of future harm to Waymo as any allegation of potential future infringement is based on pure speculation.

12. The damages amounts contained in this report do not include prejudgment or post-judgment interest. It is my understanding that prejudgment and post-judgment interest, including the appropriate interest rates, are a matter for the Court. I am prepared to calculate prejudgment and post-judgment interest if asked to do so.

V. Parties-in-Suit

A. Waymo (Google)

13. Google is a global technology company, incorporated in 1998 with its headquarters in Mountain View, California.⁶ Google stated that “[its] mission is to organize the world’s information and make it universally accessible and useful.”⁷ Research and development (“R&D”) is one of Google’s primary focal points.⁸ Sergey Brin, co-founder of Google, stated that “we’re big fans of investing heavily in R&D.”⁹ This heavy focus on R&D has assisted Google in expanding beyond its “search engine roots.”¹⁰ Since the launch of its search engine in 1998, Google has become a “tech giant” with the introduction of several new services including online advertising technologies, cloud computing, video, maps, software, and email.¹¹

14. In August 2015, Google announced that a new public holding company, Alphabet Inc. (“Alphabet”), would be created to hold a collection of businesses, the largest of which would be Google.¹² The creation of Alphabet separated Google’s “profitable search and advertising business from fledgling efforts in an array of so-called moonshots.”¹³ According to the Wall Street Journal (“WSJ”), the move involving Alphabet reflects the co-founders’ view that the company has become more complex to manage as it pursues potentially big new businesses in industries far from Google’s search-engine roots.¹⁴ The images below outline Alphabet’s structure and key units as of October 2016:¹⁵

⁶ Google, Inc. Form 10-K for the fiscal year ended December 31, 2013, pg. 3.

⁷ <https://www.thebalance.com/google-business-profile-2892814>.

⁸ <http://www.businessinsider.com/history-sergey-brin-larry-page-and-google-strategy-2011-3#they-splurged-on-research-and-development-4>.

⁹ <http://www.businessinsider.com/history-sergey-brin-larry-page-and-google-strategy-2011-3#they-splurged-on-research-and-development-4>.

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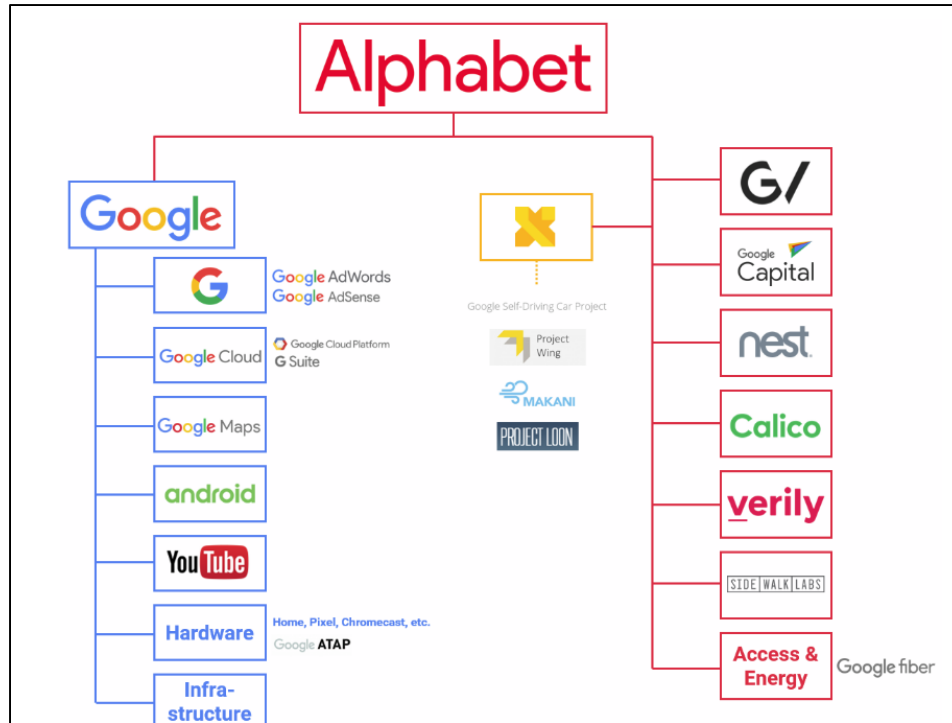
¹¹ <https://www.google.com/about/our-story/>; <http://www.telegraph.co.uk/technology/google/11984555/Rise-of-a-tech-giant-the-history-of-Google.html>.

¹² Google, Inc. Form 10-K for the fiscal year ended December 31, 2015, pg. 2.

¹³ <https://www.wsj.com/articles/google-creates-new-company-alphabet-1439240645>.

¹⁴ <https://www.wsj.com/articles/google-creates-new-company-alphabet-1439240645>.

¹⁵ <https://www.cbinsights.com/blog/google-strategy-teardown/>; <https://www.wsj.com/articles/google-creates-new-company-alphabet-1439240645>.



15. Waymo is a subsidiary of Alphabet with its principal place of business in Mountain View, California.¹⁶ Waymo began as the “Google self-driving car project” in 2009, and has since become an independent company operating as a subsidiary of Alphabet.¹⁷ Waymo is a self-driving technology company with a mission to “make it safe and easy for people and things to move around.”¹⁸ In October 2015, Waymo “completed the world’s first fully self-driving trip on public roads in a car without a steering wheel, pedals or test driver.”¹⁹ In 2017, Waymo introduced Chrysler Pacifica Hybrid minivans to its fleet, which were the “first vehicle[s] built on a mass-production platform with a fully-integrated hardware suite, newly designed by Waymo for the purpose of full autonomy.”²⁰ I understand that Waymo’s vehicles utilize a combination of LiDAR

¹⁶ First Amended Complaint, pg. 5.

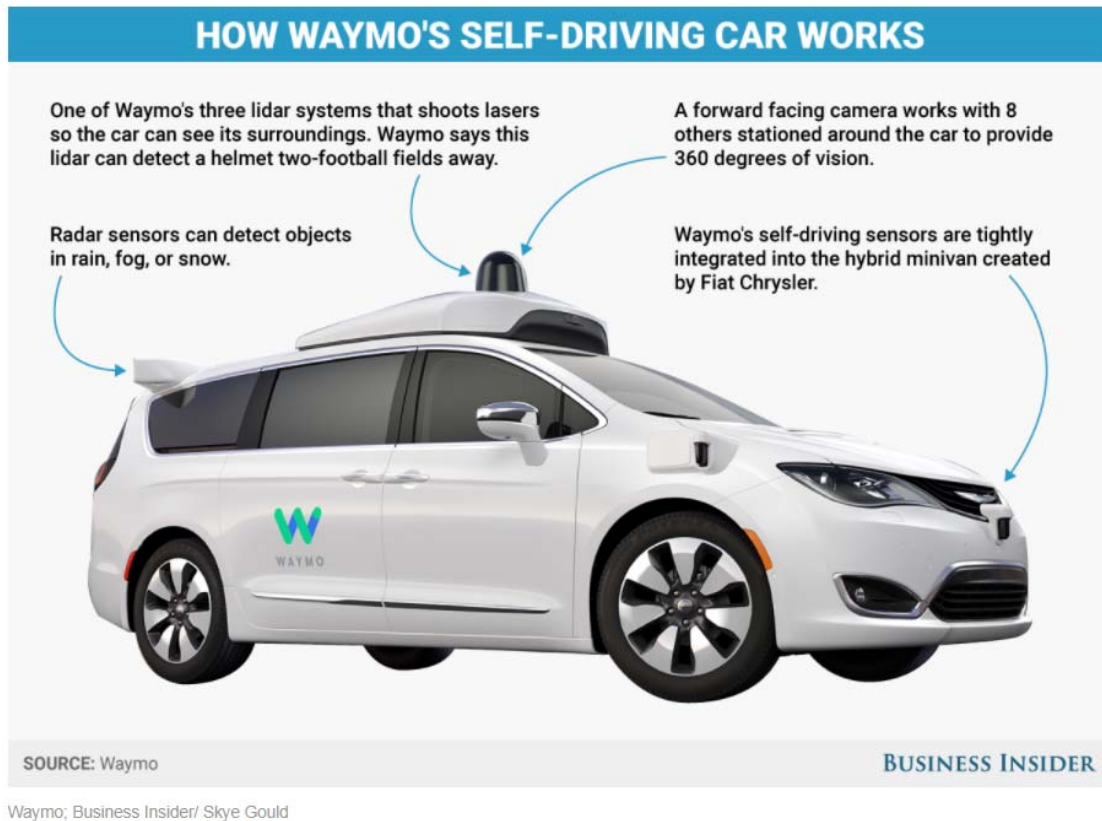
¹⁷ <https://waymo.com/journey/>. Throughout this report, “Waymo” shall refer to the self-driving car project from its inception in 2009 to present.

¹⁸ <https://waymo.com/faq/>.

¹⁹ <https://x.company/graduated>. Accessed August 24, 2017.

²⁰ <https://waymo.com/journey/>. Accessed August 24, 2017.

systems, cameras, and various other sensors to allow it to operate autonomously.²¹ The following diagram shows how “Waymo’s self-driving car works”:²²



B. Uber

16. Uber is incorporated in the state of Delaware with its principal place of business is in San Francisco, California.²³ Established in 2009, Uber has operated as a ridesharing company in which users of its smartphone app are connected with drivers.²⁴ According to Uber, it is a “technology platform,” which “connects driver-partners and riders.”²⁵ Furthermore, I understand that Uber

²¹ <http://www.businessinsider.com/uber-custom-lidar-tech-not-ready-google-waymo-lawsuit-2017-4>.

²² <http://www.businessinsider.com/uber-custom-lidar-tech-not-ready-google-waymo-lawsuit-2017-4>.

²³ First Amended Complaint, pg. 5.

²⁴ <http://www.telegraph.co.uk/technology/uber/11962859/The-history-of-Uber.html>;

<https://help.uber.com/h/738d1ff7-5fe0-4383-b34c-4a2480efd71e>.

²⁵ <https://help.uber.com/h/eac2e43e-af42-4521-a042-2982c18664af>.

“serves more than 40 million monthly active riders worldwide.”²⁶ In addition to its ridesharing business, Uber also offers other services, such as delivering, “food, flowers, and more...”²⁷ Additionally, according to Uber:²⁸

To further its mission of delivering reliable transportation to the world, Uber has built one of the strongest autonomous vehicle engineering groups in the industry. From the introduction of the world’s first self-driving Ubers in Pittsburgh to its recently announced partnership with Daimler, Uber is creating a future in which self-driving cars will make cities and roads safer, cleaner, and more accessible.

17. Uber began testing autonomous vehicles (“AVs”) (with a human backup driver) in Pittsburgh, Pennsylvania in September 2016.²⁹ The WSJ stated that this test represented Travis Kalanick’s, Uber’s former Chief Executive Officer (“CEO”), “audacious vision to one day roll out an entire fleet of AVs to replace the company’s roughly 1.5 million drivers and to ferry commuters, packages and food around urban centers.”³⁰ Since September 2016, Uber has continued its driverless car efforts in other cities around the U.S.³¹

C. Ottomotto

18. Ottomotto is a Delaware limited liability company with its principal place of business in San Francisco, California.³² Ottomotto was established in early 2016 by Anthony Levandowski and Lior Ron with a focus of designing and developing hardware and software for autonomous driving.³³ Ottomotto offered technologies for self-driving trucks to the transportation industry.³⁴

²⁶ Uber Technologies, Inc. and Ottomotto LLC’s Answer to First Amended Complaint and Affirmative Defenses, June 22, 2017, pg. 1.

²⁷ <https://www.uber.com/drive/delivery/>.

²⁸ Uber Technologies, Inc. and Ottomotto LLC’s Answer to First Amended Complaint and Affirmative Defenses, June 22, 2017, pg. 1.

²⁹ <https://www.wsj.com/articles/inside-ubers-new-self-driving-cars-in-pittsburgh-1473847202>.

³⁰ <https://www.wsj.com/articles/inside-ubers-new-self-driving-cars-in-pittsburgh-1473847202>.

³¹ <https://www.usatoday.com/story/tech/news/2016/12/22/uber-moves-self-driving-cars-pilot-to-arizona/95763516/>.

³² First Amended Complaint, pg. 6.

³³ <https://www.bloomberg.com/profiles/companies/1433882D:US-ottomotto-llc>.

³⁴ <https://www.bloomberg.com/profiles/companies/1433882D:US-ottomotto-llc>.

19. I understand that Mr. Levandowski was involved in robotics and the creation of AVs for a number of years prior to his employment at Google. In an August 2008 email, Mr. Levandowski stated that “[r]obotic technology in general ... [has] been a hobby of mine for many years...”³⁵ In 2004 and 2005, Mr. Levandowski was involved with the “Ghostrider” robot motorcycle.³⁶ According to the Smithsonian, the Ghostrider is a “robot motorcycle that drives itself, with no human intervention once it is underway.”³⁷ Ghostrider was an entrant in the AV races of 2004 and 2005 sponsored by Defense Advanced Research Projects Agency (“DARPA”).³⁸

20. Otto Trucking is a limited liability company with its principal place of business in San Francisco, California.³⁹ Similar to Ottomotto, I understand that Otto Trucking was founded by Mr. Levandowski and Mr. Ron in early 2016.⁴⁰ However, Otto Trucking is essentially a legal holding entity, and has no operations or employees.⁴¹ I understand that Uber acquired Ottomotto in or around August 2016 and the right to acquire Otto Trucking during an option period in the second half of 2017.⁴²

VI. RESPONSE TO THE WAGNER REPORT

A. Mr. Wagner’s Unjust Profits Opinion

21. Regarding his calculation of the purported unjust profits Defendants realized as a result of the alleged misappropriation of the Waymo Purported Trade Secrets (as defined below), Mr. Wagner relied on a summary slide showing the results of an internal analysis performed by Ms. Ningjun Qi, a corporate development manager at Uber, in January 2016 (the “Qi Slide”).⁴³ The Qi Slide shows the results of an exercise in which Ms. Qi attempted to quantify the present value

³⁵ WAYMO-UBER-00005849 – 850, at 849.

³⁶ http://americanhistory.si.edu/collections/search/object/nmah_1332301.

³⁷ http://americanhistory.si.edu/collections/search/object/nmah_1332301.

³⁸ http://americanhistory.si.edu/collections/search/object/nmah_1332301.

³⁹ First Amended Complaint, pg. 6.

⁴⁰ First Amended Complaint, pg. 12.

⁴¹ Deposition of Lior Ron, April 19, 2017, pg.13.

⁴² <https://newsroom.uber.com/rethinking-transportation/>; Deposition of Cameron Poetzsch, June 19, 2017, pgs. 292 and 370.

⁴³ The Wagner Report, ¶¶ 271-281; UBER00069030 – 033, at 033; and Deposition of Ningjun Qi, June 22, 2017, pgs. 75-76.

of incremental profits that Uber could potentially realize if it were able to accelerate commercialization of Uber's AV technology by one to two years.⁴⁴ Given that the Qi Slide represents the present value of incremental profits assumed to begin in 2018, the analysis underlying the Qi Slide was one of profits that were projected to occur no earlier than 2018 (i.e., future profits).⁴⁵ Mr. Wagner multiplied the estimates from the Qi Slide by a proportional factor of an estimated amount of time Waymo contends it would have taken for Uber to independently develop the Waymo Purported Trade Secrets.⁴⁶

22. According to the Court's operative Case Management Order, "[a]s to damages studies, the cut-off date for *past damages* will be as of the expert report (or such earlier date as the expert may select)."⁴⁷ The Court's order also stated that "the experts may try to project *future damages* (i.e., after the cut-off date) if the substantive standards for future damages can be met."⁴⁸ Mr. Wagner has not identified any actual past damages that Waymo suffered or any actual unjust profits that Uber realized as of August 24, 2017, the date the Wagner Report was issued. Given that Mr. Wagner's opinion of purported unjust profits is premised on a projection of future profits discounted to present value, per the Court's order, Mr. Wagner's opinion must be analyzed under the substantive standards applicable to the calculation of future damages.

23. In order to analyze the validity of Mr. Wagner's unjust profits opinion, I first examined the Qi Slide, which serves as the premise of Mr. Wagner's opinion of purported unjust profits. Given that Mr. Wagner's opinion relied so heavily on a single projection, it is critical to understand the purpose for which it was created, the analytical rigor, if any, that went into developing it, the extent to which others reviewed and critiqued it, and the extent to which it was actually relied upon and used for business decision-making purposes. Furthermore, when relying on a projection as the basis of an opinion, it is necessary to independently test the analysis to ensure that the assumptions are reasonable and that it is free of methodological errors.

⁴⁴ The Wagner Report, ¶¶ 271-281; and UBER00069030 – 033, at 033.

⁴⁵ UBER00069030 – 033, at 033.

⁴⁶ The Wagner Report, ¶¶ 282 – 285.

⁴⁷ Case 3:17-cv-00939-WHA, Document 563.

⁴⁸ Case 3:17-cv-00939-WHA, Document 563.

24. Even if the Qi Slide employed a reasonable methodology and reasonable assumptions in January 2016, Mr. Wagner's opinion of purported unjust profits is as of August 24, 2017.⁴⁹ As a result, the extent to which, if at all, Mr. Wagner undertook an analysis to substantiate that the assumptions underlying the Ms. Qi's analysis remained reasonable 18 months after she performed her analysis must be examined. I analyzed whether, ignoring the methodological flaws of the Qi Slide and the fact that Ms. Qi performed her analysis 18 months prior to Mr. Wagner issuing his opinion, Ms. Qi's analysis is speculative and unreliable in light of uncertainties surrounding the autonomous vehicle ("AV") market and the subject technology. Finally, I examined the relationship between the projected incremental profits and the Waymo Purported Trade Secrets to determine if Mr. Wagner properly apportioned projected incremental profits specifically attributable to the Waymo Purported Trade Secrets.

25. My conclusions regarding the foregoing are summarized as follows:

- The Qi Slide is an inadequate, speculative and unreliable basis upon which to base an opinion of damages. It underwent no peer review, and was never used or relied upon by Uber. Mr. Wagner has not indicated that he independently tested or re-created Ms. Qi's methodology, nor has he indicated that he independently tested the assumptions Ms. Qi utilized in her analysis to assess validity and/or reasonableness. Certain of Ms. Qi's key assumptions, such as a 15% discount rate, are unreasonable;
- Mr. Wagner failed to account for the fact that Ms. Qi prepared the analysis underlying the Qi Slide 18 months prior to the issuance of Mr. Wagner's opinions, and that assumptions it is premised upon have been disproven in real life;
- Even ignoring methodological flaws and the fact that it was prepared 18 months prior to the issuance of Mr. Wagner's opinions, the Qi Slide, and Mr. Wagner's opinion by extension, are speculative and unreliable in light of the nature of the AV technology market and uncertainties regarding its regulatory status and commercial viability; and
- Mr. Wagner's apportionment is flawed and he fails to establish a causal link between the Waymo Purported Trade Secrets and purported unjust profits.

⁴⁹ The Wagner Report.

*i. Mr. Wagner's Unjust Profit Analysis Is Based on a Single Slide
Summarizing an Analysis that Uber Never Used*

26. Mr. Wagner's opinion of purported unjust profits is premised on the results shown on the Qi Slide, which is a summary slide from January 2016 that shows projections of incremental profits resulting from a one to two year acceleration of Uber's entire AV program. Given that Mr. Wagner's opinion is so heavily reliant on this single document, it was necessary for Mr. Wagner to fully examine the context in which the Qi Slide was created and independently test the data Ms. Qi relied upon and the assumptions she used in the underlying analysis. Based on the discussion provided in the Wagner Report, Mr. Wagner has not undertaken these analyses.

27. As an initial matter, and contrary to Mr. Wagner's assertion, Ms. Qi's analysis did not "indicate[] that Ottomotto could shorten Uber's AV development timeline by one to two years."⁵⁰ Ms. Qi testified, "this assessment is not to prove that he would accelerate AV development. This assessment shows what happens or attempts to quantify the value of what would it look like *if AV development was accelerated by one to two years.*" (emphasis added).⁵¹ To the extent that Mr. Wagner is suggesting that the Qi Slide represents Uber's valuation of Ottomotto (or the Waymo Purported Trade Secrets), this is rebutted by the evidence and testimony.⁵²

28. Ms. Qi described the genesis of her exercise as follows:⁵³

[John Bares and Brian McClendon] made a comment that they do think this would accelerate AV development. But other than that, they were unsure of how to quantify it or value it. [...] They basically asked me to think about that, a way to like show the number, but they reiterated that they think this would help accelerate Uber's AV development efforts.

⁵⁰ The Wagner Report, ¶ 273.

⁵¹ Deposition of Ningjun Qi, June 22, 2017, pg. 222; *see also id.* at pgs. 217 and 222 – 223 ("I tried to quantify the value of an AV acceleration. So call it in one to two years, what would that look like for Uber business model without that and with that.").

⁵² For example: Deposition of Ningjun Qi, June 22, 2017, pg. 217, and 222 – 223; Deposition of Ningjun Qi, August 10, 2017, pgs. 402 – 403, 406, and 433.

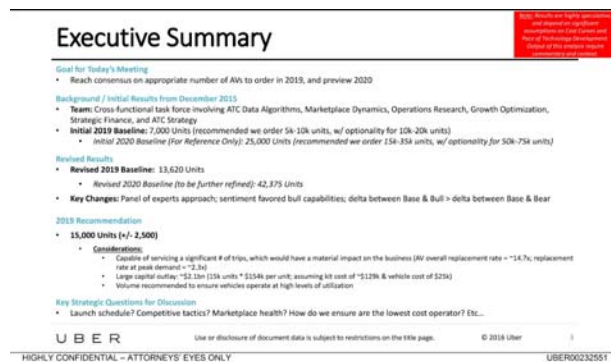
⁵³ Deposition of Ningjun Qi, June 22, 2017, pg. 216.

29. Based on this, Ms. Qi attempted to assign a value to accelerated development of Uber's AV program, which necessarily required making various assumptions regarding future regulations, market penetration/rides-per-day, profit margins, competition, and discount rates.

30. Despite his reliance on the Qi Slide, Mr. Wagner did not test any of the assumptions Ms. Qi utilized in her analysis, or offer any independent opinion as to their reasonableness. In addition, Mr. Wagner did not create his own model to test against the Qi Slide. Rather, Mr. Wagner merely made reference to an email from Ms. Qi and various Project Rubicon presentations, which were prepared *after* Ms. Qi prepared the Qi Slide, in support of his determination of whether to utilize the "optimistic city coverage" numbers or the "baseline city coverage" numbers shown on the Qi Slide.⁵⁴ However, a bright red box with the following warning was placed prominently throughout two of the three Project Rubicon presentations Mr. Wagner referred to:⁵⁵

Note: Results are highly speculative, and depend on significant assumptions on Cost Curves and Pace of Technology Development. Output of this analysis require commentary and context.

31. The following screen shot is an example of one of the numerous instances in which this notice appeared in the Project Rubicon presentations Mr. Wagner relied on in his attempt to corroborate his analysis.⁵⁶



Note: Results are highly speculative, and depend on significant assumptions on Cost Curves and Pace of Technology Development. Output of this analysis require commentary and context.

⁵⁴ The Wagner Report, ¶¶ 274, and 278 – 279.

⁵⁵ UBER00063680 – 695; and UBER00232488 – 514.

⁵⁶ UBER00063680 – 695; and UBER00232488 – 514.

32. Mr. Wagner's own summary of the Project Rubicon presentations demonstrates that the estimates were shifting wildly over short period of time.⁵⁷ As stated in the September 13, 2016 presentation: "Uncertainty is high; range is wide."⁵⁸ Notably, although Ms. Qi used an iteration of the Rubicon model to develop the analysis underlying the Qi Slide, she was not listed as one of the 10 main creators of the Rubicon model.⁵⁹ Mr. Wagner failed to independently analyze how Ms. Qi utilized the Rubicon model data and assumptions in her own analysis. Furthermore, other Uber employees testified that the Rubicon model was speculative and hypothetical. For example, Eric Meyhofer, Uber's head of ATC, testified as follows:⁶⁰

Q: Okay. So how many -- how many cities was Uber estimating that it would be in, in November 2015 then, for autonomous vehicles in -- at that time, looking forward to 2022?

A: This document runs scenarios on assumptions.

Q: I understand. So my question now -- I'm saying -- if you're telling me that this document is not making any sort of an estimate, my question for you: What was the estimate, pre-Otto acquisition, of how many cities that Uber would be deploying autonomous vehicles in, let's say, in 2022?

A: It would only have hypothetical scenarios. It was unknown how many we would deploy in 2022 as it is still unknown....

Q: Was there some sort of breakthrough that Uber had between May 2016 and September 2016 that changed the projections from 13,000 units in 2019 to over 75,000 units?

A: So these results are highly speculative and depend on significant assumptions. And they change those assumptions and speculations from one report to another --

⁵⁷ The Wagner Report, ¶¶ 278 – 279.

⁵⁸ UBER00232630 – 668, at 631.

⁵⁹ UBER00231665 – 696, at 665.

⁶⁰ Deposition of Eric Meyhofer, August 18, 2017, pgs. 11, 75 – 76 and 82.

33. Mr. Meyhofer also testified that “[t]hese are assumptions teams run to play back scenarios and do if-then analysis. This isn’t our roadmap. This is what the data analytics team projected against particular dates in the scenarios.”⁶¹ When describing statements in certain Project Rubicon presentations, Mr. Meyhofer stated: “I don’t think anything in this document would be described as accurate. They are assumptions and estimates.”⁶²

Q: Why was the data analytics team assuming 13 cities?

A: They probably ran a lot of scenarios beyond 13 cities. Maybe they assumed two in another scenario or one or 300. It’s a set of knobs you turn to try to understand parameters that you need to try to meet.

Q: So your testimony is that this number was just picked at random?

A: I don’t think anything in Jeff Schneider’s world is random. But as a machine learning team, they do need to run lots of scenarios.

Q: Why did they pick 13 cities?

A: Unknown to me.

Q: Is that an accurate description of Uber’s estimate of how many cities they would be deployed in as of -- in the year 2022, with the estimate happening in November 2015?

A: I don’t think anything in this document would be described as accurate. They are assumptions and estimates.

34. Additionally, Mr. Wagner provided no indication that he examined how Ms. Qi, or the Rubicon model, accounted for the many risks associated with commercialization of Uber’s AV technology. Waymo itself has identified numerous “significant risks” that “could affect the success of [its] program and [its] anticipated TaaS business,” including “Supply Side Risk” and

⁶¹ Deposition of Eric Meyhofer, August 18, 2017, pgs. 85 – 86.

⁶² Deposition of Eric Meyhofer, August 18, 2017, pg. 76.

“Demand Side Risk.”⁶³ In summary, Waymo identified the following categories of significant risk factors in a document titled “Chauffeur Valuation Risk Factors”:⁶⁴

1. Supply Side Risk: We deliver commercially viable technology
 - a. We get self-driving technology to work
 - i. We can’t get/develop a vehicle platform
 - ii. We can’t get/develop sensors
 - iii. We can’t solve all the software challenges
 - iv. We can’t get our overall system reliability high enough
 - b. We get the cost of the technology down enough to run a sustainable TaaS business
2. Demand Side Risk: We are able to generate harvestable consumer demand
 - a. We achieve consumer acceptance of self-driving cars
 - b. We avoid regulatory prohibition of our technology
3. Other Risks:
 - a. Corporate funding risks
 - b. Secular risks
 - c. Macro Risks
 - d. Commercialization risks

35.

[REDACTED]

⁶³ WAYMO-UBER-00046625 – 632, at 625.

⁶⁴ WAYMO-UBER-00046625 – 632.

⁶⁵ WAYMO-UBER-00046625 – 632, at 632.

[REDACTED]

[REDACTED]

36.

[REDACTED]

37. Mr. Wagner’s failure to independently test Ms. Qi’s assumptions and methodology is particularly troubling given evidence that Ms. Qi’s analysis was not vetted internally at Uber. Ms. Qi testified that, to her knowledge “no one reviewed those slides” and that “after [she] completed the exercise it was never talked about again.”⁷⁰ Ms. Qi further testified that “this was [her] own assessment and ultimately was not used in any forum.”⁷¹ As such, neither the Qi Slide, nor Ms. Qi’s underlying analysis, was ever reviewed by Ms. Qi’s

⁶⁶ <http://www.ncsl.org/research/transportation/autonomous-vehicles-self-driving-vehicles-enacted-legislation.aspx>.

⁶⁷ UBER00069030 – 033, at 033.

⁶⁸ WAYMO-UBER-00032541 at cell K20 on “Inputs” tab.

⁶⁹ WAYMO-UBER-00039951 – 40027, at 976.

⁷⁰ Deposition of Ningjun Qi, June 22, 2017, pgs. 217, and 222 – 223.

⁷¹ Deposition of Ningjun Qi, June 22, 2017, pg. 223.

superiors or other corporate managers, presented to Uber's CEO or other executives, or part of any board package in connection with the Ottomotto transaction.

38. Ms. Qi was deposed a second time on August 10, 2017. In that deposition, she confirmed that her analysis was never finalized and was never used for any purpose.⁷²

Q: ... And so did you make a determination of the number of months that acquiring Otto would accelerate Uber's development in autonomous vehicles?

A: We didn't specifically make a determination. At one point, John Bares and Brian McClendon estimated that it would help accelerate by 12 to 24 months. But it was not something that we ever really finalized or had an expectation of once we closed the deal.

Q: Is that something you considered in determining the value of the deal?

A: I did do some analysis on that, but, ultimately, it wasn't shared or used in really determining value. (emphasis added)

39. The foregoing evidence demonstrates that Mr. Wagner did not perform the vetting necessary to establish that the Qi Slide, which consisted of a single summary slide presenting the results of a highly speculative analysis of future incremental profits, is a reliable basis for a \$1,690,000,000 opinion of purported unjust profits damages.⁷³ As a result, Mr. Wagner's opinion is speculative and unreliable.

ii. Mr. Wagner Failed to Account for the Fact that the Qi Slide is 18 Months Old and Its Assumptions Have Been Disproven

40. Even assuming, for the sake of argument, that the methodology and assumptions underlying the Qi Slide were reasonable when Ms. Qi prepared it in January 2016, Mr. Wagner

⁷² Deposition of Ningjun Qi, August 10, 2017, pg. 406.

⁷³ Mr. Wagner's summary of conclusions demonstrates that he used the "Baseline Coverage" in attempting to calculate purported unjust profits damages. Mr. Wagner made a contradictory statement that the "Optimistic Coverage" is the more reasonable option. To the extent Mr. Wagner later seeks to base his opinions off the "Optimistic Coverage," I reserve the right to respond. The Wagner Report, ¶¶ 286, and 326.

performed no analysis to establish that those assumptions remained reasonable 18 months later in August 2017 when Mr. Wagner issued his opinions that are premised on the Qi Slide. Forecasting future profits always involves assessment of future uncertainties in light of the best information known at the time. As a result, it is critical that forecasts of future profits account for the most current information. However, rather than project incremental profits using the best current information as of August 2017, Mr. Wagner relied on the Qi Slide, which was prepared in January 2016. As a result, Mr. Wagner has not examined or accounted for any changes to the technological, economic, regulatory, competitive, or market landscapes (for example) that may have occurred between January 2016 and August 2017. This renders Mr. Wagner's opinion further unreliable.

41. As an initial matter, evidence indicates that the assumption upon which the Qi Slide was based—that Ottomotto would accelerate AV commercialization by 1 to 2 years—is not only incorrect, but that the Ottomotto acquisition actually set Uber's AV program back, making the "Baseline Coverage" model (i.e., 13 cities by 2022) unrealistic. For example, John Bares, a Manager at Uber, testified that, by August 2016, he believed the Ottomotto acquisition would be a "setback" to Uber's AV development effort, and that the acquisition ultimately did not advance Uber's development efforts, as explained in his testimony below.⁷⁴

Q: Did the acquisition of NewCo advance Uber's development efforts for self-driving cars?

...

A: Are you asking my opinion as of today?

Q: Yes.

A: No.

Q: Why not?

A: Because we - - well, we never got any lasers out of it. It had huge distractions due to the trucking - - trucking efforts; as I said earlier, a huge managerial disruption on our staff due to Anthony's - - as a

⁷⁴ Deposition of John Bares, June 16, 2017, pg. 85; and Deposition of John Bares, August 11, 2017, pgs. 374 – 375.

result of Anthony's effort to manage and lead, so then, that was a setback.

Q: ... What were your expectations in August 2016?

...

A: By that point, 2016, about the same as I just said.

Q: So even at that point, you did not expect the acquisition to advance Uber's development efforts for self-driving cars?

A: No, because I saw every one of those things I mentioned already taking hold.

Q: ... At some point you expected the NewCo acquisition to advance Uber's self-driving car efforts. Correct?

A: Yes, for a three- to four-week period, starting in early January 2016.

42. Mr. Wagner also failed to address the status of the milestones upon which almost all of the consideration for the Ottomotto transaction are based. Because the milestones are based on steps towards commercialization, it is logical to assume that they would be reached—and restricted stock options vested—if the city coverage assumptions underlying the Qi Slide were to bear out.⁷⁵ Yet Mr. Wagner has not applied any offset to the incremental profits represented in the Qi Slide, which estimates present value (PV) rather than net present value (NPV) of EBIT⁷⁶ contributions.⁷⁷ Under a proper analysis of purported unjust incremental profits, consideration paid to acquire Ottomotto must offset the PV shown in the Qi Slide in order to arrive at an NPV figure.

43. Mr. Wagner's failure to offset consideration paid to acquire Ottomotto against the PV shown in the Qi Slide may be explained by the fact that no milestones have been achieved.⁷⁸ This fact suggests that, not only did the Ottomotto acquisition (and the alleged acquisition of the Waymo Purported Trade Secrets) not advance Uber's AV commercialization by one to two years, as Mr.

⁷⁵ UBER00016585 – 748, at 660 – 661, 669 – 671, and 706 – 720.

⁷⁶ Earnings before interest and taxes.

⁷⁷ UBER00069030 – 033, at 033.

⁷⁸ Deposition of Lior Ron, April 19, 2017, pg. 83; and Deposition of Jur Van Den Berg, August 2, 2017, pg. 172.

Wagner assumed, but that Ms. Qi's assumption of 13-city coverage by 2022 is inaccurate. Mr. Wagner failed to analyze or account for the fact that no milestones of the Ottomotto acquisition have been achieved, or any other facts relating to the current status of Uber's AV program.

44. In summary, Mr. Wagner has relied on a single summary slide of an exercise performed 18 months prior to the issuance of his unjust enrichment opinions that was never relied upon by Uber management and subsequently proven to be incorrect. Furthermore, Mr. Wagner failed to account for the cost to acquire Ottomotto, and has relied on the results presented on the Qi Slide without vetting the underlying analysis. As a result, the Qi Slide is a speculative and unreliable basis for Mr. Wagner's opinion of purported unjust profits, rendering his opinion speculative and unreliable.

iii. Even Ignoring that the Qi Slide is Speculative and Unreliable, Mr. Wagner's Unjust Profits Opinion is Premised on Layers of Speculation and is Unreliable

45. Given that the commercialization of fully-automated vehicles is still at least several years away, no TaaS company has ever generated a single dollar of revenue, let alone realized profits, from the use of AVs without a safety driver to transport passengers.⁷⁹ In fact, it remains uncertain when, if ever, anybody will. According to Mr. Emil Michael, former Senior Vice President of Business Development at Uber, "the launch of a ... autonomous vehicle that can generate revenue without any safety driver in there is still years away."⁸⁰ Mr. Wagner's opinion of purported unjust profits resulting from the alleged misappropriation of the Waymo Purported Trade Secrets is particularly speculative given the uncertainty inherent in efforts to commercialize AV technology for use in the TaaS space, which no company has successfully accomplished to date.⁸¹

46. As discussed above, evidence indicates that Waymo is cognizant of the challenges that must be overcome in order to successfully commercialize use of AVs in TaaS. As noted, Waymo

⁷⁹ <https://www.extremetech.com/extreme/252112-what-is-a-self-driving-car>.

⁸⁰ Deposition of Emil Michael, July 28, 2017, pgs. 17, and 137-138.

⁸¹ <https://www.extremetech.com/extreme/252112-what-is-a-self-driving-car>.

has identified numerous categories of “significant risks” that “could affect the success of [its] program and [its] anticipated TaaS business.”⁸² Those include:⁸³

1. Supply Side Risk: We deliver commercially viable technology
 - a. We get self-driving technology to work
 - i. We can’t get/develop a vehicle platform
 - ii. We can’t get/develop sensors
 - iii. We can’t solve all the software challenges
 - iv. We can’t get our overall system reliability high enough
 - b. We get the cost of the technology down enough to run a sustainable TaaS business
2. Demand Side Risk: We are able to generate harvestable consumer demand
 - a. We achieve consumer acceptance of self-driving cars
 - b. We avoid regulatory prohibition of our technology
3. Other Risks:
 - a. Corporate funding risks
 - b. Secular risks
 - c. Macro Risks
 - d. Commercialization risks

47. As Waymo’s list of significant risk factors indicates, even if Uber and/or Waymo successfully develop AV technology, they still face “Demand Side Risk,” including consumer acceptance and regulatory prohibition or constraint.⁸⁴ A January 2017 report by Deloitte stated that “[a]lthough the majority of US consumers surveyed think driving in AVs would be fun and would free up time to do other things, three out of four are skeptical that self-driving cars will be safe anytime soon.”⁸⁵ Deloitte also stated:⁸⁶

... Several recent reports have attempted to estimate the failure and fatality rates associated with autonomous vehicles, and the consensus is that these vehicles would have to be driven hundreds of millions of miles to sufficiently demonstrate their safety... Raising public awareness of

⁸² WAYMO-UBER-00046625 – 632, at 625.

⁸³ WAYMO-UBER-00046625 – 632.

⁸⁴ WAYMO-UBER-00046625 – 632.

⁸⁵ Giffi, Craig, et al., *The Race to Autonomous Driving*, Deloitte Review, Issue 20, 2017, pg. 84.

⁸⁶ Giffi, Craig, et al., *The Race to Autonomous Driving*, Deloitte Review, Issue 20, 2017, pg. 86 (citations omitted).

autonomous technology, Google has been running driverless cars on public roads for several years, while Uber recently launched an autonomous option to its ridesharing service in Pittsburgh. Both of these experiments aim to considerably increase the amount of data on real-world autonomous driving in a very visible and consumer-friendly way. On the other hand, tragic events involving autonomous vehicle features can cast a shadow over the technology, resulting in potential loss of consumer confidence.

48. Waymo also acknowledged the “risk that [Waymo will] have a bad accident and this will lose [Waymo] trust.”⁸⁷ Additionally, Waymo noted that there “is also a risk that [Waymo’s] security systems will be breached and one of [its] vehicles hacked.”⁸⁸ A Waymo presentation, dated March 22, 2017, indicated that Waymo also recognizes that the “ideal scaling strategy has many feasibility challenges.”⁸⁹ The presentation indicated that Waymo has “identified ~20 major feasibility challenges” and that “likely many more challenges along the way.”⁹⁰ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

49. Waymo indicated that the seven factors above were of the “[h]ighest challenge, impact, and parallel pull on resources.”⁹² However, even if Uber and/or Waymo are able to successfully

⁸⁷ WAYMO-UBER-00046625 – 632, at 630.

⁸⁸ WAYMO-UBER-00046625 – 632, at 630.

⁸⁹ WAYMO-UBER-00032218 – 283, at 238.

⁹⁰ WAYMO-UBER-00032218 – 283, at 238.

⁹¹ WAYMO-UBER-00032218 – 283, at 238.

⁹² WAYMO-UBER-00032218 – 283, at 238.

develop AV technology, if consumers accept the technology as being safe, and if they are able to successfully scale their respective AV operations, they must still overcome a complex and still uncertain web of regulatory hurdles at various levels of government on a market-by-market basis. I understand that current regulatory policy prohibits the operation of AVs on most public roads without a human driver able to take control upon system disengagement or failure.⁹³ For example, New York maintains a 1967 law “that requires drivers to have at least one hand on the steering mechanism of any moving vehicle.”⁹⁴ A recent attempt to amend this requirement failed.⁹⁵

50. Washington D.C. similarly permits the operation of AV on public roads if the vehicle “[h]as a manual override feature that allows a driver to assume control” and there must be “a driver seated in the control seat of the vehicle while in operation who is prepared to take control of the autonomous vehicle at any moment.”⁹⁶ California law mandates vehicles be designed so that a licensed driver could take control of the vehicle in the case of technology failure.⁹⁷

51. Notably, the original draft of the California law had been crafted to allow for entirely driverless cars as long as they were capable of autonomously complying with traffic laws, but the State Assembly rejected this notion and inserted an explicit requirement that AVs permit a human “operator” to override through a steering column, brake or accelerator pedal.⁹⁸ It has been noted that these rules effectively prohibit the deployment of Waymo’s driverless vehicles, which lack this capability, and that this signals an unwillingness by the California legislature to let autonomous vehicles be truly “autonomous.”⁹⁹ Waymo recognizes this specific law as a hurdle “that might limit the ability of self-driving cars to operate,” and observers have noted the likelihood

⁹³ <http://www.ncsl.org/research/transportation/autonomous-vehicles-self-driving-vehicles-enacted-legislation.aspx>.

⁹⁴ <https://www.usatoday.com/story/money/cars/2017/06/25/regulators-scramble-stay-ahead-self-driving-cars/100963150/>; and <http://www.govtech.com/fs/NYs-Slow-Pace-on-Autonomous-Vehicle-Legislation-Could-Put-It-at-a-Disadvantage-in-Years-Ahead.html>.

⁹⁵ <http://www.govtech.com/fs/NYs-Slow-Pace-on-Autonomous-Vehicle-Legislation-Could-Put-It-at-a-Disadvantage-in-Years-Ahead.html>.

⁹⁶ D.C. Act 19-643, Autonomous Vehicle Act of 2012 (2013); and <http://www.ncsl.org/research/transportation/autonomous-vehicles-self-driving-vehicles-enacted-legislation.aspx>.

⁹⁷ Cal. SB 1298 (2012).

⁹⁸ Cal. SB 1298, Cal. Assembly Committee on Transportation Hearing, June 25, 2012.

⁹⁹ See <http://www.ibtimes.com/california-google-ready-autonomous-vehicle-showdown-2016-2233290>; and <https://www.theverge.com/2015/12/16/10325672/california-dmv-regulations-autonomous-car>.

that other states may model their laws after California's, resulting in entrenchment issues going forward.¹⁰⁰

52. According to Mr. Ron Medford, Director of Safety for Waymo, the California Department of Motor Vehicles has developed regulations for testing AVs, but has not completed development of regulations for the operation of AVs, and are in the process of amending the existing regulations for testing AVs.¹⁰¹ However, Mr. Medford testified that he does not know when the California regulations will be finalized, what the final regulations will say about AVs, whether the final regulations will allow Waymo to test its AVs on public roads, or what conditions will apply to the operation of AVs.¹⁰² Mr. Medford also provided the following testimony regarding state of California's AV regulatory structure:¹⁰³

Q: Based on current California regulations, is Waymo allowed to have passengers in autonomous vehicles on public roads without drivers?

A: No.

Q: When will Waymo be allowed to have autonomous vehicles on public roads without drivers?

...

A: When California allows it in its regulations.

Q: When will that be?

A: I don't know.

53. AV developers have been required to navigate these regulations in their operations. For example, in order for Google to test its prototype vehicles "the company was required to add

¹⁰⁰ WAYMO-UBER-00046625 – 632, at 630 – 631; Deposition of Charlie Johnson, August 17, 2017, pg. 224; and Daniel A. Crane, et al., "A Survey of Legal Issues Arising from the Deployment of Autonomous and Connected Vehicles," 23 Mich. Telecomm. Tech. L. Rev. 191, 219 (Spring 2017).

¹⁰¹ Deposition of Ron Medford, August 23, 2017, pgs. 37 – 38, and 46 – 50.

¹⁰² Deposition of Ron Medford, August 23, 2017, pgs. 73 – 75.

¹⁰³ Deposition of Ron Medford, August 23, 2017, pgs. 78 – 79.

temporary manual controls to the vehicles.”¹⁰⁴ Similarly, Cruise operates a pilot program testing AV technology as a ride-hailing service called “Cruise Anywhere”, currently available to its employees in San Francisco.¹⁰⁵ However, each vehicle has a “safety driver in place behind the wheel for testing and as required by law.”¹⁰⁶

54. Uber has not yet made plans for roll-out of its AV TaaS, because planning would be hindered by uncertainties as to whether, or in what form, the regulatory environment might one day permit the technology to be implemented.¹⁰⁷ This uncertainty is exacerbated by an expectation within the industry that at some point “someone is going to die in this technology.... [and that] could really set back the integration of this technology.”¹⁰⁸ If ill-timed, an early and highly-publicized fatality could result in a regulatory pullback that could further hinder commercialization of AV TaaS or driverless AV, generally.¹⁰⁹

55. The possibility that regulatory hurdles may constrain the progress and commercialization of AV technology is well-established. Waymo recognizes that regulatory lags present a substantial risk to a timely launch of AV TaaS. In its “Plan of Record Strategy,” Waymo enumerated the risks it faces in the AV space, one of which is “regulatory hurdles block[ing] [its] TaaS service from operating.”¹¹⁰ [REDACTED]

[REDACTED] Charlie Johnson, a Business Strategy and Operations Analyst at Waymo, recognized that “some regulations might impede [Waymo’s] ability

¹⁰⁴ Karim R. Lakhani, et al., “Google Car,” Harvard Business School Case 614-922, January 2014 (Rev. March 9, 2015), pg. 10.

¹⁰⁵ https://techcrunch.com/2017/08/08/cruise-is-running-an-autonomous-ride-hailing-service-for-employees-in-sf/?ncid=rss&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+Techcrunch+%28TechCrunch%29.

¹⁰⁶ https://techcrunch.com/2017/08/08/cruise-is-running-an-autonomous-ride-hailing-service-for-employees-in-sf/?ncid=rss&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+Techcrunch+%28TechCrunch%29.

¹⁰⁷ Deposition of Gautam Gupta, August 18, 2017, pgs. 127 – 128.

¹⁰⁸ S. Hrg. 114-416, “Hands Off: The Future of Self-Driving Cars,” Hearing before the Committee on Commerce, Science, and Transportation, United States Senate, 114th Congress, Second Session, March 15, 2016, pg. 63.

¹⁰⁹ Deposition of John Krafcik, August 2, 2017, pg. 131.

¹¹⁰ WAYMO-UBER-00031805 – 817, at 811.

¹¹¹ WAYMO-UBER-00031805 – 817, at 811.

to serve customers, that would be a challenge [Waymo] would have to respond to.”¹¹² Waymo’s fears of AV regulatory issues are echoed throughout the industry, in the media, and by regulators.

56. The Self Driving Coalition, an organization of which Waymo is a member, aggregates national news stories on the progress of AV technology.¹¹³ Headlines are persistently pessimistic with regard to AV policy issues. The following are a few of those headlines:

- “New York law requiring hand on wheel stymies pace of self-driving cars”¹¹⁴
- “Regulators scramble to stay ahead of self-driving cars”¹¹⁵
- “Auto industry pushes for clear federal oversight of driverless cars”¹¹⁶
- “Car companies race to roll out self-driving cars, but the rules aren't ready”¹¹⁷
- “Automakers ask California to ease rules for self-driving car tests”¹¹⁸
- “Waymo cries foul over self-drive legislation”¹¹⁹
- “Big-name companies come out against self-driving car bill”¹²⁰
- “Congress and DOT must take additional measures beyond self-driving vehicle guidance”¹²¹
- “Google, automakers object to California rules for self-driving cars”¹²²
- “Self-driving car advocates: Feds should set safety rules, not states”¹²³

¹¹² Deposition of Charlie Johnson, August 17, 2017, pgs. 11 and 224.

¹¹³ <http://www.selfdrivingcoalition.org/about>; and <http://www.selfdrivingcoalition.org/newsroom/in-the-news>.

¹¹⁴ <http://buffalonews.com/2017/07/31/new-york-takes-baby-steps-toward-self-driving-vehicles/>.

¹¹⁵ <https://www.usatoday.com/story/money/cars/2017/06/25/regulators-scramble-stay-ahead-self-driving-cars/100963150/>.

¹¹⁶ <http://www.freep.com/story/money/cars/2017/06/27/auto-industry-federal-driverless-cars/431292001/>.

¹¹⁷ <https://www.cbsnews.com/news/is-the-u-s-ready-for-self-driving-cars-rules-legislation/>.

¹¹⁸ <http://www.reuters.com/article/us-autos-california-regulations-idUSKBN17R30X>.

¹¹⁹ <http://www.autonews.com/article/20170220/OEM11/302209926/waymo-cries-foul-over-self-drive-legislation>.

¹²⁰ <https://www.bizjournals.com/nashville/news/2017/02/10/big-name-companies-come-out-against-self-driving.html>.

¹²¹ <http://thehill.com/blogs/congress-blog/technology/309242-congress-and-dot-must-take-additional-measures-beyond-self>.

¹²² <http://news.trust.org/item/20161019210239-8mauc>.

¹²³ <https://www.usatoday.com/story/tech/news/2016/04/27/self-driving-car-advocates-say-feds-should-set-rules/83620666/>.

57. AV developers are pushing the U.S. Congress for “unified federal regulations to replace outdated rules,” and have “urged California to make changes to its proposed state regulations governing autonomous vehicles.”¹²⁴ Also, individuals “involved in the nation’s autonomous vehicle industry [...] all raised concerns about New York’s sloth-like path to driverless vehicles.”¹²⁵ According to Mr. Medford, there is currently a bill in the House of Representatives regarding autonomous vehicles.¹²⁶ Mr. Medford understands that the bill, as written, would require the U.S. Secretary of Transportation to make certain rules regarding autonomous vehicles and that he doesn’t know what those rules will be.¹²⁷ In fact, Mr. Medford acknowledged that if the law is passed, he doesn’t know if Waymo will be able to legally operate AVs in the United States under the rules that the Secretary of Transportation promulgates.¹²⁸ I understand that a bill regarding autonomous vehicles recently passed the U.S. House of Representatives, demonstrating the unsettled regulatory nature of this area.¹²⁹

58. AV developers are aware of the regulatory hurdles that hinder their entry into the market. “In the race to deliver cars that can safely operate themselves, proponents are increasingly concerned about a fast-growing thicket of regulations and laws being proposed by states that could come in conflict with each other and threaten to hold up development.”¹³⁰ Mitch Bainwol, CEO of the Alliance of Automobile Manufacturers, has acknowledged that “the U.S. lacks a critical uniform national framework to advance [AV] technologies.”¹³¹ In fact, Waymo’s own CEO has testified that that regulatory hurdles are a major risk and “always need to be considered.”¹³²

59. Leaders in the AV industry also recognize that regulatory hurdles may cause material delays in the commercialization of AV technology. A representative of IHS Automotive has stated

¹²⁴ <http://www.reuters.com/article/us-usa-selfdriving/senators-unveil-road-map-for-self-driving-car-legislation-idUSKBN1942QJ?il=0>.

¹²⁵ <http://buffalonews.com/2017/07/31/new-york-takes-baby-steps-toward-self-driving-vehicles/>.

¹²⁶ Deposition of Ron Medford, August 23, 2017, pg. 162.

¹²⁷ Deposition of Ron Medford, August 23, 2017, pg. 162.

¹²⁸ Deposition of Ron Medford, August 23, 2017, pg. 162.

¹²⁹ <https://energycommerce.house.gov/selfdrive/>.

¹³⁰ <https://www.usatoday.com/story/money/cars/2017/06/25/regulators-scramble-stay-ahead-self-driving-cars/100963150/>.

¹³¹ <http://www.freep.com/story/money/cars/2017/06/27/auto-industry-federal-driverless-cars/431292001/>.

¹³² Deposition of John Krafcik, August 2, 2017, pg. 131.

that “[AV regulation] could be messier, and it could take longer than we want it to,” and that they anticipate “state-by-state and some federal fights happening.”¹³³ Volvo’s vice president of government affairs, Anders Karrberg, recognizes that the U.S. “runs the risk of slowing down the development and introduction of autonomous driving technologies by making it difficult for carmakers to test, develop, certify and sell” self-driving cars.¹³⁴

60. Regulation can move slowly, especially regulation related to safety issues. For example, “Congress in 2008 instructed the Department of Transportation to implement a new standard by 2011 requiring automakers to adopt rearview cameras. After numerous delays, the rule was issued in 2014, but it won’t take effect until 2018.”¹³⁵ That is, safety related regulation mandated in 2008, will not take effect until next year—a full ten years after the DOT received instructions from congress, and seven years beyond the date by which they were mandated to take action. The slow pace with which regulators will likely act is not limited to the federal level. Additionally, “states are balancing a desire to be viewed as beacons of innovation while also seeking to protect their residents from technology that remains unproven on a large scale.”¹³⁶

61. Policy makers recognize the inadequacy of current AV regulations and the inability of agencies like the NHTSA to adequately oversee such regulations.¹³⁷ Some legislators are “troubled” by NHTSA’s lack of insight on matters relating to AVs.¹³⁸ Statements from legislators also indicate a reluctance to act too quickly or to be overly permissive about AV technology.¹³⁹

¹³³ <https://www.usatoday.com/story/money/cars/2017/06/25/regulators-scramble-stay-ahead-self-driving-cars/100963150/>.

¹³⁴ <https://www.usatoday.com/story/money/cars/2017/06/25/regulators-scramble-stay-ahead-self-driving-cars/100963150/>.

¹³⁵ <https://www.usatoday.com/story/money/cars/2017/06/25/regulators-scramble-stay-ahead-self-driving-cars/100963150/>.

¹³⁶ <https://www.usatoday.com/story/money/cars/2017/06/25/regulators-scramble-stay-ahead-self-driving-cars/100963150/>.

¹³⁷ Hrg. 114-416, Hearing before the Committee on Commerce, Science, and Transportation, United States Senate, 114th Congress, Second Session, March 15, 2016, pgs. 58 – 59.

¹³⁸ <http://www.freep.com/story/money/cars/2017/06/27/auto-industry-federal-driverless-cars/431292001/>.

¹³⁹ Hrg. 114-416, Hearing before the Committee on Commerce, Science, and Transportation, United States Senate, 114th Congress, Second Session, March 15, 2016, pgs. 3 – 4.

62. Regulators and policy makers also acknowledge that regulations are a barrier to the commercial implementation of AV technology. “Federal auto regulations pose significant legal hurdles that must be cleared before fully self-driving cars can be sold without steering wheels and gas pedals.”¹⁴⁰ Additionally, several well-respected legislators have reported that “existing federal vehicle regulations written over recent decades did not account for self-driving cars without a human driver behind the wheel.”¹⁴¹

63. It may be years, if ever, before regulations are in place that would allow AV TaaS operators to operate without safety drivers. Until then, they will have to pay drivers and incur the expense of operating and maintaining AV systems, if they wish to run an AV-based TaaS platform. Therefore, Uber allegedly gaining some modest time advantage as a result of the alleged misappropriation of the Waymo Purported Trade Secrets would likely have no real impact, as Uber, and the many other AV developers, will still have to wait for the appropriate regulatory framework to be instituted.

64. Competition presents yet another risk to the successful commercialization of Uber’s and Waymo’s AV technologies. The analysis underlying the Qi Slide is based on the assumptions that Uber can successfully penetrate 13 cities by 2022 and have thousands of rides at specific profit levels.¹⁴² However, among the other factors discussed, these assumptions are susceptible to the degree of competition Uber will face in the marketplace.

65. According to a May 2017 presentation from RethinkX, an independent think tank, early movers in the AV industry include Tesla, Waymo, NVIDIA, Uber, and Baidu.¹⁴³ RethinkX also stated that “[c]ompanies within the incumbent auto industry, such as GM and Ford, have also acquired Silicon Valley startups that are developing autonomous vehicle software.”¹⁴⁴

¹⁴⁰ <https://www.reuters.com/article/us-usa-selfdriving/senators-unveil-road-map-for-self-driving-car-legislation-idUSKBN1942QJ>.

¹⁴¹ <https://www.reuters.com/article/us-usa-selfdriving/senators-unveil-road-map-for-self-driving-car-legislation-idUSKBN1942QJ>.

¹⁴² UBER00069030 – 033, at 033.



¹⁴³ https://static1.squarespace.com/static/585c3439be65942f022bbf9b/t/591a2e4be6f2e1c13df930c5/1494888038959/RethinkX+Report_051517.pdf, pg. 36.

¹⁴⁴ https://static1.squarespace.com/static/585c3439be65942f022bbf9b/t/591a2e4be6f2e1c13df930c5/1494888038959/RethinkX+Report_051517.pdf, pg. 36.

Additionally, RethinkX noted that California had approved requests by 30 companies to test their self-driving cars on public roads.¹⁴⁵

66. Furthermore, Tesla recently announced the development of its own ridesharing platform, which RethinkX stated “is an indicator of this future industry trend.”¹⁴⁶ A number of platform-related developments by auto industry incumbents are in progress, including GM’s \$500 million investment in Lyft, BMW’s ridesharing service, ReachNow, and Volkswagen’s \$300 million investment in Gett.¹⁴⁷

67. I also note that, while Mr. Wagner relied on the Qi Slide as the basis of his opinion, he neglected to consider his opinion of purported unjust profits in light of the following slide showing “Market Comparables” that was in the same slide deck as the Qi Slide.¹⁴⁸

Market Comparables		
<u>Company</u>	<u>Valuation</u>	<u>Commentary</u>
 QUANERGY	\$1.3B	<ul style="list-style-type: none"> • Raised \$30M Series A in December 2014 • Rumored to be raising \$200M at \$1.3B pre-money valuation
Velodyne	\$950M	<ul style="list-style-type: none"> • Rumored to be raising \$100M at \$900M-\$1B pre-money valuation
 Google (AL's Division)	\$2.1B	<ul style="list-style-type: none"> • 36 employees • Average payout ~\$60M per employee

68. As shown above, the slide indicated valuations for Quanergy, Velodyne, and “Google (AL’s Division)” of \$1.3 billion, \$950 million, and \$2.1 billion, respectively.¹⁴⁹ Thus, Mr.

¹⁴⁵ https://static1.squarespace.com/static/585c3439be65942f022bbf9b/t/591a2e4be6f2e1c13df930c5/1494888038959/RethinkX+Report_051517.pdf, pg. 26 (citations omitted).

¹⁴⁶ https://static1.squarespace.com/static/585c3439be65942f022bbf9b/t/591a2e4be6f2e1c13df930c5/1494888038959/RethinkX+Report_051517.pdf, pg. 36 (citations omitted).

¹⁴⁷ https://static1.squarespace.com/static/585c3439be65942f022bbf9b/t/591a2e4be6f2e1c13df930c5/1494888038959/RethinkX+Report_051517.pdf, pg. 36 (citations omitted).

¹⁴⁸ UBER00069030 – 033, at 032.

¹⁴⁹ UBER00069030 – 033, at 032.

Wagner's opinion of purported unjust profits for the alleged misappropriation of the Waymo Purported Trade Secrets is greater than the entire indicated value of both Quanergy and Velodyne, and approximately 80% of the entire indicated value of "Google (AL's Division)."

69. Given that no company, including Uber and Waymo, has yet to commercialize operations or realize a profit from its AV efforts, and the numerous "significant risks" facing successful commercialization of an AV TaaS operations, any attempt to value future incremental profits is highly speculative. As a result, Mr. Wagner's opinion regarding the purported present value of the incremental future profits Uber will realize sometime in the future as a result of allegedly misappropriating the Waymo Purported Trade Secrets is speculative and unreliable.

iv. Mr. Wagner's Apportionment Methodology Is Flawed

70. In order to establish a causal link between the Waymo Purported Trade Secrets and purported unjust profits, Waymo must be able to explain: (i) how Uber's alleged misappropriation of the Waymo Purported Trade Secrets actually caused Uber to realize unjust profits; and (ii) what portion of those unjust profits are attributable to the alleged misappropriation of the Waymo Purported Trade Secrets, as opposed to the myriad of other contributing technologies and factors.

¹⁵⁰ Mr. Wagner did neither of these in his analysis.

71. Mr. Wagner's entire unjust profits opinion is based on the false assumption that each of the Waymo Purported Trade Secrets individually accelerated Uber's entire AV technology by the amount of time it would take to independently develop each Waymo Purported Trade Secrets, thereby moving commercialization of Uber's AV technology to an earlier date. In order to calculate the purported unjust profits attributable to the alleged misappropriation of each of the Waymo Purported Trade Secrets, Mr. Wagner multiplied the present value estimate represented on the Qi Slide by a proportional factor based on the estimated "amount of development time saved by Uber."¹⁵¹ Thus, for example, Mr. Wagner assumed that commercialization of Uber's entire AV

¹⁵⁰ Weil, et al., *Litigation Services Handbook (Fourth Edition)*, pg. 2.1-2. I note that Mr. Wagner was an editor of this publication.

¹⁵¹ The Wagner Report, ¶¶ 282 – 285.

program was accelerated by two years as a result of allegedly not having to independently develop Waymo Purported Trade Secret No. 25.¹⁵² However, this assumption is flawed.

72. Mr. Wagner's assumption could only be correct if AV development were a serial process. That is, if all steps of development had to be undertaken in a specific sequence, and that the failure to finalize one component means that the development of thousands of other components—both software and hardware—are delayed by the amount of time necessary to complete predecessor components. Mr. Wagner employs this serial development assumption to effectively opine that no other AV development (across Uber's entire AV program) would occur during a period in which independent development of the Waymo Purported Trade Secrets was occurring, and thereby, commercialization of Uber's AV technology would have taken longer but for the alleged misappropriation of the Waymo Purported Trade Secrets. In his unjust profits analysis, Mr. Wagner flips this assumption to opine that the alleged misappropriation of the Waymo Purported Trade Secrets will allow Uber to commercialize its AV technology faster than it would have, but for the alleged misappropriation of the Waymo Purported Trade Secrets.

73. There is no support for Mr. Wagner's serial development assumption. Hardware is merely one component of an AV technology; LiDAR is merely a small component of AV hardware; and the Waymo Purported Trade Secrets are merely a small component of LiDAR.¹⁵³ The headcount of Uber's hardware department is 155 people, while the software department has 405 people.¹⁵⁴ The hardware engineering team does not wait for the LiDAR team to perform work, and the software team does not wait until the hardware team is finished to commence work.¹⁵⁵ AVs are multidimensional systems comprised of a number of complex hardware and software elements, each being developed in parallel.¹⁵⁶ As discussed in greater detail below, these elements include:

- Highly detailed 3-D computerized maps;¹⁵⁷

¹⁵² The Wagner Report, ¶ 285.

¹⁵³ Interview of Dr. Lebby and Dr. McManamon.

¹⁵⁴ UBER00231730 – 739, at 732.

¹⁵⁵ WAYMO-UBER-00001354 – 412, at 363.

¹⁵⁶ WAYMO-UBER-00001354 – 412, at 363 and 383.

¹⁵⁷ WAYMO-UBER-00031699 – 801, at 713 – 717.

- A suite of sensors that includes LiDAR, radar, digital camera, and sonar systems;¹⁵⁸
- Communications systems;¹⁵⁹
- Software-based Artificial Intelligence (“AI”) algorithms and databases;¹⁶⁰ and
- A specially designed vehicle that can accommodate and implement these features.¹⁶¹

74. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

75. An October 5, 2016 email from Sasha Zbrozek, Electrical Engineer at Google, regarding the investigation into Mr. Levandowski’s access of Google information, confirms the secondary significance of hardware in AV technology, which undermines Mr. Wagner’s assumption that a single component of LiDAR technology could unilaterally advance commercialization of Uber’s AV technology.¹⁶² Mr. Zbrozek stated in his email that “[a]t least historically, high-value has been algorithms and software. *The hardware (at all levels) was a second class citizen* (emphasis added). Maybe opinions have changed.”¹⁶³ In a prior email in the same chain, Mr. Zbrozek stated the following about the materials Mr. Levandowski had accessed:¹⁶⁴

It’s all electronics designs – schematics and PCB layouts, and the component library for their creation. It was considered low-value enough that we even considered hosting it off of Google infrastructure.

¹⁵⁸ WAYMO-UBER-00031699 – 801, at 714. See also <http://spectrum.ieee.org/cars-that-think/transportation/self-driving/how-driveai-is-mastering-autonomous-driving-with-deep-learning>.

¹⁵⁹ <https://www.engadget.com/2017/06/24/self-driving-cars-mcity-augmented-reality/>.

¹⁶⁰ <http://spectrum.ieee.org/cars-that-think/transportation/self-driving/how-driveai-is-mastering-autonomous-driving-with-deep-learning>; Hod Lipson, et al., “Driverless: Intelligent Cars and the Road Ahead,” The MIT Press: Cambridge, 2016, pgs. 197 – 203.

¹⁶¹ Interview of Dr. Lebby and Dr. McManamon.

¹⁶² Deposition of Sasha Zbrozek, August 18, 2017, pg. 15; WAYMO-UBER-00084484.

¹⁶³ WAYMO-UBER-00084484 (emphasis added).

¹⁶⁴ WAYMO-UBER-00084484 (emphasis added).

*[Mr. Levandowski] was a high-level manager, and not doing any direct technical contribution at this level. It's not particularly surprising that he might check things out once in the misguided dream of maybe making individual contribution or maybe taking a look at the progress of a widget. It clearly wasn't part of his routine. **Doesn't ring the alarm bells for me.***
(emphasis added)

76. In light of all these different components of AV technology, Mr. Wagner's assumption that each of the Waymo Purported Trade Secrets—all of which relate to discrete aspects of LiDAR hardware—allowed Uber to simply skip over months (or years) of hardware, algorithm, and software development is unsupported and unreliable. If required to independently develop each of the Waymo Purported Trade Secrets, Uber could simply employ additional engineering resources to work in parallel with Uber's existing AV development efforts in order to commercialize its AV technology in the same amount of calendar time as it would without independent development of the Waymo Purported Trade Secrets. For example, Uber's response to Common Interrogatory No. 1 stated:¹⁶⁵

The Schedule times identified for the redesigns below would not significantly or materially impact the timeline for commercialization and rollout of Uber's fully-autonomous self-driving technology to the general public.

77. Although Mr. Wagner adopted Uber's schedule of times for all Waymo Purported Trade Secrets except Nos. 25 and 111, he ignored this important part of Uber's response.

78. It is also important to note the difference between accelerated development and accelerated entry to market. The Qi Slide is focused on market entry. But even fully mature AV technology cannot immediately be commercialized. As noted elsewhere, there are regulatory, safety, and marketing obstacles, as well as the need to put the AV technology into a vehicle. Accordingly, the amount of development time necessary to independently develop each of the Waymo Purported Trade Secrets has no direct relationship to the accelerated commercialization of Uber's entire AV

¹⁶⁵ Defendant Uber Technologies, Inc. and Ottomotto LLC's Second Supplemental Responses to Waymo's First Set of Common Interrogatories (Nos. 1-3), Response to Common Interrogatory No. 1.

technology, particularly when Uber's commercialization timeline stretches out years beyond the time required for independent development.¹⁶⁶

79. The flaw in Mr. Wagner's serial development assumption is illustrated by the way in which he calculated unjust profits in the event that multiple Waymo Purported Trade Secrets are found to have been misappropriated. Mr. Wagner effectively opined that the alleged misappropriation of the Waymo Purported Trade Secrets accelerated commercialization of Uber's AV technology by 3.86 years, which is the sum of Mr. Wagner's purported accelerated development for eight of the Waymo Purported Trade Secrets.¹⁶⁷ This would mean that, applying Ms. Qi's assumption of commercialization in 13 cities by 2022, Uber should be ready to commercialize AV Technology in 13 cities by next year (2018), which is a contention for which Mr. Wagner has no basis.

80. In an apparent attempt to remedy the results of his flawed assumption, Mr. Wagner stated that he also "assumed that the accelerated AV development is not additive" and that "only the corresponding unjust enrichment for the trade secret with the longest period of accelerated AV development should be awarded."¹⁶⁸ However, this assumption contradicts his entire methodology. If each individual alleged trade secret advances the entire AV program by the amount of time required for independent development, this necessarily means that all other work that would be done in parallel is irrelevant. Mr. Wagner does not explain why the Waymo Purported Trade Secrets are subject to different rules than all of the other technology that goes into the development of fully autonomous vehicles.

81. It should be re-stated that my rebuttal opinion is based on the assumption that there is a finding that Uber has used the Waymo Purported Trade Secrets. Uber contends that the Waymo Purported Trade Secrets have not been utilized in Uber's AV technology.¹⁶⁹ Furthermore, according to Dr. McManamon, he has not seen any indication that Uber has utilized Waymo

¹⁶⁶ Interview of Dr. Lebby and Dr. McManamon.

¹⁶⁷ The Wagner Report, ¶ 285 (sum of "Accelerated AV Development (Years)").

¹⁶⁸ The Wagner Report, ¶ 286.

¹⁶⁹ Uber Technologies, Inc. and Ottomotto LLC's Answer to First Amended Complaint and Affirmative Defenses, June 22, 2017, pgs. 3 – 4; and Defendant Uber Technologies, Inc. and Ottomotto LLC's Second Supplemental Responses to Waymo's First Set of Common Interrogatories (Nos. 1 – 3), Response to Common Interrogatory No. 1.

Purported Trade Secrets Nos. 25 or 111.¹⁷⁰ Similarly, according to Dr. Lebby, he has not seen any indication that Uber has utilized the remaining Waymo Purported Trade Secrets in its AV technology.¹⁷¹ As a result, even if Uber had already realized profits from its AV technology, which it has not, it would be improper to attribute any profits to the Waymo Purported Trade Secrets, because there is no evidence indicating that Uber used the Waymo Purported Trade Secrets. For this reason alone, Mr. Wagner has no basis to attribute any purported unjust profits to the Waymo Purported Trade Secrets.

82. With respect to Waymo Purported Trade Secrets Nos. 25 and 111, Mr. Wagner relied on Waymo's technical expert, Dr. Hesselink, for the opinion that alleged misappropriation saved Defendants at least two years and one year, respectively, of development time.¹⁷² However, it is Dr. McManamon's opinion that Waymo Purported Trade Secrets Nos. 25 and 111 would not have accelerated commercialization of Uber's AV technology at all, even if there was an indication that Uber utilized those particular Waymo Purported Trade Secrets, which there is not.¹⁷³ If it is determined that Waymo Purported Trade Secrets Nos. 25 and 111 have not accelerated Uber's commercialization, as Dr. McManamon opined, no purported unjust profits would be attributable to those two purported trade secrets. As a result, Mr. Wagner has overstated purported unjust profits attributable to Waymo Purported Trade Secrets Nos. 25 and 111 by "apportioning" \$1,690 million and \$836 million to those purported trade secrets, respectively.¹⁷⁴

83. Furthermore, based on Mr. Wagner's description of Waymo Purported Trade Secret No. 25, he understands that it consists of a collection of self-driving car test scenarios.¹⁷⁵ Mr. Wagner gave no consideration to the number of scenarios within the collection of test scenarios Uber is alleged to have used in development of its AV technology. Mr. Hesselink's report, upon which Mr. Wagner relied, identified at most six test scenarios that Waymo alleges Uber

¹⁷⁰ Interview of Dr. McManamon.

¹⁷¹ Interview of Dr. Lebby.

¹⁷² The Wagner Report, ¶ 284.

¹⁷³ Interview of Dr. McManamon.

¹⁷⁴ The Wagner Report, ¶ 285.

¹⁷⁵ The Wagner Report, ¶¶ 47 – 50.

misappropriated.¹⁷⁶ Mr. Wagner's failure to apportion value to only the test scenarios that Uber used, if any, renders his apportionment analysis further unreliable.

v. Conclusions Regarding Mr. Wagner's Unjust Profits Opinion

84. Mr. Wagner's opinion is based on speculation about future profits that may never occur, which is premised on the results of an unreliable analysis that has been proven incorrect. Additionally, Mr. Wagner has conflated time required to independently develop the Waymo Purported Trade Secrets with accelerated commercialization of Uber's AV technology, failed to establish a causal link connecting the alleged misappropriation of the Waymo Purported Trade Secrets to any unjust profits, and performed an improper "apportionment." For at least the foregoing reasons, Mr. Wagner's opinion regarding the purported unjust profits Uber realized as a result of the alleged misappropriation of the Waymo Purported Trade Secrets is unreliable and grossly overstates unjust enrichment damages, if any.

85. I also note that Mr. Wagner's unjust profits analysis is predicated on an assumption that no injunction is granted. If an injunction is granted, Uber will have to independently develop and/or design-around the Waymo Purported Trade Secrets and, under Mr. Wagner's theory, no unjust profits will result.

B. Mr. Wagner's Avoided Cost Opinion

86. Mr. Wagner's avoided cost opinion is premised on the following statement from Mr. Bares' notes from January 2016 regarding a meeting he had with Anthony Levandowski: "he would bring (filtered) advice about what to try and not try...that is a day with him and our team could save us months towards 2020 (month = \$20M run rate)."¹⁷⁷ Mr. Wagner then multiplied \$20 million per month by the same "amount of development time saved by Uber" that he used to calculate

¹⁷⁶ The Hesselink Report, pgs. 38 – 43.

¹⁷⁷ UBER00060321 – 347, at 321; Deposition of John Bares, June 16, 2017, pgs. 209 – 215; and Interview of John Bares.

purported unjust profits in order to calculate the purported avoided costs Uber enjoyed attributable to each of the Waymo Purported Trade Secrets.¹⁷⁸

i. The \$20 Million per Month Run Rate is for the Uber's Entire AV Program and Not Tied to the Waymo Purported Trade Secrets

87. Mr. Wagner's avoided cost analysis is flawed because he used the cash burn rate for Uber's entire AV program rather than the cost of independently developing each of the Waymo Purported Trade Secrets. As he did with his opinion of purported unjust profits, Mr. Wagner assumed that each Waymo Purported Trade Secret advanced the launch date of Uber's AV, and thereby saved Uber months or years of incurred costs for its entire AV program.¹⁷⁹

88. According to Mr. Bares, "at the time [Uber] had this goal of getting to know [*sic*] safety driver in 2020, and we were burning 20 million dollars a month in our org so if you save us a month getting there, you save 20 million dollars." (emphasis added)¹⁸⁰ Thus, as with the analysis underlying the Qi Slide, the \$20 million run rate was relevant to the speed with which Uber's entire AV program was being developed, not the time necessary to independently develop each of the Waymo Purported Trade Secrets.

89. As noted previously, LiDAR—the area of AV to which the Waymo Purported Trade Secrets allegedly relate—is merely one element of the hardware, which is merely one element of Uber's AV program. [REDACTED]

90. On its face, the statement from Mr. Bares' notes refers to potential cost savings Mr. Bares thought may result from advice Mr. Levandowski may have been able to provide to Uber. Mr.

¹⁷⁸ The Wagner Report, ¶¶ 292 – 295.

¹⁷⁹ The Wagner Report, ¶¶ 292 – 295.

¹⁸⁰ Deposition of John Bares, June 16, 2017, pgs. 214 – 215.

¹⁸¹ UBER00231730 – 739, at 732.

Bares' deposition testimony confirms this interpretation of the note. Mr. Bares stated the following about the note at his June 16, 2017 deposition:¹⁸²

Filtered advice to me was know-how. It's like which way to attack the mountain and he had been at this since I met him that day in the desert in 2004, multiple companies, multiple efforts. The first guy to send an autonomous car across the Bay Bridge, he knew a lot about autonomy, so he would bring filtered men, he's not going to bring direct advice from a prior company such as Google, but he would bring filtered to me, like you filtered up enough and then it's know-how.

91. According to Mr. Bares, he did not contemplate the Waymo Purported Trade Secrets, or any proprietary technologies, when he recorded the note about the \$20 million monthly run rate. In fact, Mr. Bares testified that he specifically was not considering "direct advice from a prior company such as Google."¹⁸³ Instead, he was considering Mr. Levandowski's "filtered" advice (which, according to Mr. Bares, along with the acquisition of Ottomotto, ultimately did not save Uber any time in its AV development).¹⁸⁴ Mr. Wagner has provided no basis to support the notion that Mr. Bares' consideration of the value Mr. Levandowski and/or the Ottomotto acquisition could provide Uber was tied to the Waymo Purported Trade Secrets.

92. In light of the foregoing, Mr. Bares' note regarding a \$20 million monthly run rate is not tied to the Waymo Purported Trade Secrets at issue in this matter and is not a reliable basis for Mr. Wagner's opinion regarding Uber's purported avoided costs. Furthermore, given that Mr. Wagner conflated time required to independently develop the Waymo Purported Trade Secrets with accelerated commercialization, as he did with his analysis of purported unjust profits, I incorporate the above discussion of Mr. Wagner's failure to acknowledge the distinction between time to independently develop the Waymo Purported Trade Secrets and accelerated commercialization herein. For the various reasons discussed above Mr. Wagner's opinion of the purported costs Uber

¹⁸² Deposition of John Bares, June 16, 2017, pg. 214.

¹⁸³ Deposition of John Bares, June 16, 2017, pg. 214.

¹⁸⁴ Deposition of John Bares, June 16, 2017, pg. 214; and Deposition of John Bares, August 11, 2017, pgs. 374 – 375; and 458 – 460.

avoided as a result of the alleged misappropriation of the Waymo Purported Trade Secrets is unreliable and grossly overstates unjust enrichment damages.

93. As discussed in detail below, it is my opinion that the appropriate measure of the purported unjust enrichment Uber realized as a result of the alleged misappropriation of the Waymo Purported Trade Secrets, if any, is the cost Uber would incur to employ additional resources to independently develop the Waymo Purported Trade Secrets. Unlike Mr. Wagner's opinion, this measure of unjust enrichment does not conflate time to independently develop the Waymo Purported Trade Secrets with accelerated commercialization of Uber's AV technology and saved development costs.

94. It is also worth noting the degree to which Mr. Wagner's use of the run rate for the entire AV program inflates his calculation of purported unjust enrichment. Even if Mr. Wagner's flawed methodology were employed, and one assumed that independent development of the Waymo Purported Trade Secrets would halt all work in Uber's entire hardware department for the amount of time needed for such independent development, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

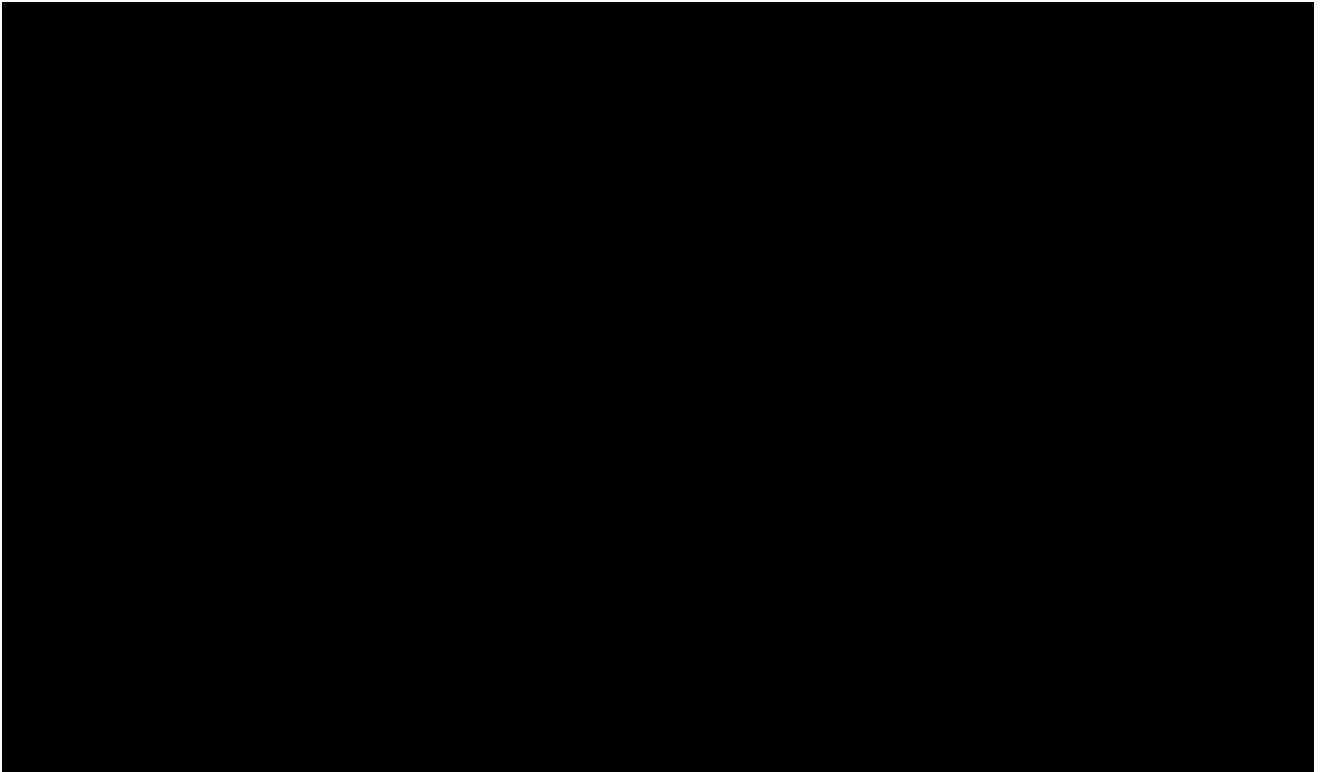
[REDACTED]

[REDACTED]

95. [REDACTED]

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¹⁸⁷ UBER00231730 – 739, at 732.



*ii. Mr. Wagner Did Not Establish a Causal Link Connecting the Waymo
Purported Trade Secrets to Purported Avoided Costs*

96. Mr. Wagner failed to establish a causal link between the alleged misappropriation of the Waymo Purported Trade Secrets and his calculation of purported avoided costs. Similar to Mr. Wagner's analysis of alleged unjust profits, Waymo must explain: 1) how Uber's alleged misappropriation of the Waymo Purported Trade Secrets caused Uber to avoid costs; and 2) what portion of those avoided costs are specifically attributable to the alleged misappropriation of the Waymo Purported Trade Secrets, as opposed to other contributing technologies and factors. Mr. Wagner did neither.

97. Mr. Wagner's opinion is based on purported cost savings of Uber's entire AV program. He did not isolate purported cost savings attributable to each of the Waymo Purported Trade Secrets. As with his opinion regarding purported unjust profits, Mr. Wagner improperly assumed that Uber's AV development is a serial process and that no AV development (across the entire program) would occur during a period that Uber independently developed the Waymo Purported

Trade Secrets. For the reasons discussed above in relation to unjust profits, which I incorporated herein, this assumption is unreliable and lacks any basis in evidence. If Mr. Wagner's assumption regarding serial development were to hold true, it would require a conclusion that during the two year period Mr. Wagner opined is needed to independently develop Waymo Purported Trade Secret No. 25, Uber's entire AV program would simultaneously: 1) not be making any advances towards commercialization or developing any other AV technology; and 2) continue to employ over 700 employees, including over 400 software personnel, at a cost of tens of millions of dollars a month, while waiting on the purported trade secret to be developed before the next purported trade secret would be independently developed.¹⁸⁸

98. As discussed above, Uber contends that the Waymo Purported Trade Secrets have not been utilized in Uber's AV technology.¹⁸⁹ Furthermore, according to Dr. McManamon, he has not seen any indication that Uber has utilized Waymo Purported Trade Secrets Nos. 25 or 111.¹⁹⁰ Similarly, according to Dr. Lebby, he has not seen any indication that Uber has utilized the remaining Waymo Purported Trade Secrets in its AV technology.¹⁹¹ As a result, it is improper to presume that Uber benefited from any avoided costs attributable to the Waymo Purported Trade Secrets, because there is no evidence indicating that the Waymo Purported Trade Secrets were used. For this reason, Mr. Wagner has no basis to attribute any purported avoided costs to the Waymo Purported Trade Secrets.

99. Furthermore, based on Mr. Wagner's description of Waymo Purported Trade Secret No. 25, he understands that it consists of a collection of self-driving car test scenarios.¹⁹² Mr. Wagner gave no consideration to the number of scenarios within the collection of test scenarios Uber is alleged to have used in development of its AV technology. As a result, to the extent Uber has used less than all of the test scenarios constituting Waymo Purported Trade Secret No. 25, Mr. Wagner's

¹⁸⁸ UBER00231730 – 739, at 732.

¹⁸⁹ Uber Technologies, Inc. and Ottomotto LLC's Answer to First Amended Complaint and Affirmative Defenses, ¶¶ 14 – 15; and Defendant Uber Technologies, Inc. and Ottomotto LLC's Second Supplemental Responses to Waymo's First Set of Common Interrogatories (Nos. 1 – 3), Response to Common Interrogatory No. 1.

¹⁹⁰ Interview of Dr. McManamon.

¹⁹¹ Interview of Dr. Lebby.

¹⁹² The Wagner Report, ¶¶ 47 – 50.

apportionment is further flawed because he failed to attribute value to only the test scenarios Uber actually used, if any.

iii. Conclusions Regarding Mr. Wagner's Avoided Cost Opinion

100. Mr. Wagner's opinion is premised on a data point from Mr. Bares' notes that is tied to Uber's entire AV program, and not to the Waymo Purported Trade Secrets. Additionally, Mr. Wagner has conflated time required to independently develop the Waymo Purported Trade Secrets with accelerated commercialization of Uber's AV technology, and failed to establish a causal link between the alleged misappropriation of the Waymo Purported Trade Secrets and any avoided costs. For at least these reasons, Mr. Wagner's opinion regarding the purported costs Uber avoided as a result of the alleged misappropriation of the Waymo Purported Trade Secrets is unreliable and grossly overstates unjust enrichment damages.

101. I also note that Mr. Wagner's unjust profits analysis is predicated on an assumption that no injunction is granted. If an injunction is granted, Uber will have to do the redesign work related to the Waymo Purported Trade Secrets and, under Mr. Wagner's damages theory, no development costs will be avoided.

C. Mr. Wagner's "Unquantified Unjust Enrichment" Opinions

102. With respect to Mr. Wagner's discussion of cost savings based on lower costs of lasers, Mr. Wagner's opinion is as follows: "[t]here is evidence that Uber is likely to achieve significant cost savings over the next several years on its LiDAR sensors, and this will result in substantial cost savings given the number of vehicle that it expects to roll out."¹⁹³ However, Mr. Wagner failed to explain how this potential future cost savings is caused by, or even related to, the alleged misappropriation of the Waymo Purported Trade Secrets. In fact, Mr. Wagner acknowledged that "[a]t this time, [he has] not found enough evidence to reliably estimate the cost savings that Uber

¹⁹³ The Wagner Report, ¶¶ 313 – 319, at 319.

will achieve based on developing its own LiDAR, let alone the cost savings attributable to the misappropriation of the trade secrets.”¹⁹⁴

103. Similarly, Mr. Wagner’s discussion regarding “value to ‘De-Risking’ laser approach” provides no indication how this purported value results from the alleged misappropriation of the Waymo Purported Trade Secrets, and he acknowledged that he was unable to perform “a specific quantification for the value to Uber of having a second laser path and ‘de-risking’ its laser approach.”¹⁹⁵

104. Finally, Mr. Wagner identified several other “benefits to Defendants that he cannot quantify,” including: 1) unjust enrichment to Ottomotto Trucking from potential consideration to be paid if Uber exercised its option to acquire Ottomotto Trucking; 2) unjust enrichment to Ottomotto Trucking or Uber based on employing LiDAR systems with reduced expenses in the future; and 3) unjust enrichment to Defendants related to its potential future use of Trade Secret No. 90.¹⁹⁶ Notably, each of these purported benefits are “potential” and/or “future” benefits. Furthermore, with respect to the first and second “other unquantified benefit,” Mr. Wagner has failed to indicate how the alleged misappropriation of the Waymo Purported Trade Secrets caused (or will potentially cause in the future) Uber to realize any unquantified benefit.

105. Mr. Wagner’s discussion regarding “Unquantified Unjust Enrichment” is mere superfluous speculation about notions that Mr. Wagner acknowledges he cannot quantify, and is entirely unreliable.

D. Mr. Wagner’s Reasonable Royalty Opinion

106. For his reasonable royalty calculation, Mr. Wagner utilized his opinion of purported unjust profits Defendants realized as a result of alleged misappropriation of the Waymo Purported Trade

¹⁹⁴ The Wagner Report, ¶¶ 313 – 319, at 319.

¹⁹⁵ The Wagner Report, ¶¶ 320 – 324.

¹⁹⁶ The Wagner Report, ¶¶ 320 – 325.

Secrets as a “Baseline Royalty.”¹⁹⁷ Mr. Wagner then applied a ten percent increase over the “Baseline Royalty,” effectively applying a 110% royalty rate.¹⁹⁸

i. Mr. Wagner’s “Baseline Royalty” is Speculative and Unreliable

107. Mr. Wagner utilized his calculation of purported unjust profits Uber realized as a result of allegedly misappropriating the Waymo Purported Trade Secrets as the royalty base, or “Baseline Royalty,” for his reasonable royalty opinion.¹⁹⁹ I incorporate the above discussion of Mr. Wagner’s unjust profits opinion herein. Therefore, Mr. Wagner’s “Baseline Royalty” is unreliable and grossly overstates reasonable royalty damages for the same reasons that Mr. Wagner’s opinion regarding purported unjust profits is unreliable and grossly overstates unjust enrichment damages.

108. Furthermore, as discussed in detail below, the hypothetical negotiation construct involves a negotiation between a willing licensor, in this case Waymo, and a willing licensee, in this case Uber. Considering the following factors, it is not rational or logical to conclude that Uber, as a willing licensee at a hypothetical negotiation occurring between December 2015 and August 2016, would have agreed to pay a royalty of \$1.859 billion for a license to the Waymo Purported Trade Secrets wherein:

- Uber contends that it has not utilized the Waymo Purported Trade Secrets, and Dr. McManamon and Dr. Lebbby opined that they have not seen any indication that Uber utilized the Waymo Purported Trade Secrets;²⁰⁰
- Uber has not realized any profits from its AV development efforts, and the launch of an AV that can generate revenue without any safety driver is still years away;²⁰¹
- Successful commercialization of Uber’s AV technology faces the same significant risks that Waymo faces, including “Supply Side Risks,” and “Demand Side Risks” like

¹⁹⁷ The Wagner Report, ¶¶ 384 – 387.

¹⁹⁸ The Wagner Report, ¶¶ 439 – 440.

¹⁹⁹ The Wagner Report, ¶¶ 384 – 385.

²⁰⁰ Uber Technologies, Inc. and Ottomotto LLC’s Answer to First Amended Complaint and Affirmative Defenses, ¶¶ 14-15; and Defendant Uber Technologies, Inc. and Ottomotto LLC’s Fifth Supplemental Responses to Waymo’s First Set of Common Interrogatories (Nos. 1 – 3), Response to Common Interrogatory No. 1; Interview of Dr. McManamon; and Interview of Dr. Lebbby.

²⁰¹ Deposition of Emil Michael, July 28, 2017, pgs. 137 – 138.

consumer acceptance and regulatory prohibition and/or containment.²⁰²

- Internal Google emails indicate Google placed little value on the Waymo Purported Trade Secrets,²⁰⁴
- If faced with a demand for an exorbitant royalty, as discussed below, Uber could have independently developed the Waymo Purported Trade Secrets for \$605,000, rather than taking a license; and
- \$1.859 billion is approximately twice the entire indicated value of Velodyne, and 89% of the indicated value that Google placed on its entire AV program in late 2015.²⁰⁵

109. For at least the foregoing reasons, the notion that Uber would have paid Waymo \$1.859 billion for a license to use the Waymo Purported Trade Secrets is not rational.²⁰⁶ Furthermore, although his opinion regarding the purported costs Uber avoided is also flawed and unreliable, Mr. Wagner provided no explanation as to why he chose his calculation of purported unjust profits as the “Baseline Royalty” rather than his calculation of purported avoided costs. Although Mr. Wagner stated that he has not reviewed evidence that provides a more reasonable starting point than his calculations of purported unjust profits and avoided costs, he merely asserted that he utilized his calculation of purported unjust profits as the “Baseline Royalty” without explaining why doing so is more appropriate than using his calculation of purported avoided costs.²⁰⁷

110. In the following table I compared Mr. Wagner’s reasonable royalty opinion to what it would have been if Mr. Wagner had utilized his opinion of purported avoided cost as his “Baseline Royalty” rather than his opinion of purported unjust profits.

²⁰² WAYMO-UBER-00046625 – 632, at 632.

²⁰³ WAYMO-UBER-00046625 – 632, at 632.

²⁰⁴ WAYMO-UBER-00084484.

²⁰⁵ Velodyne was valued at \$950 million and Google at \$2.1 billion. UBER00069030 – 033, at 032.

²⁰⁶ I note that both Waymo and Uber would have been aware of these factors at the hypothetical negotiation under the Book of Wisdom. *Sinclair Refining Co. v. Jenkins Petroleum Process Co.*, 289 U.S. 689, 698 (1933).

²⁰⁷ The Wagner Report, ¶ 385.

Trade Secret No.	Using Purported Unjust Profits as “Baseline Royalty”	Using Purported Avoided Costs as “Baseline Royalty”	Amount Using Purported Unjust Profits Increased Reasonable Royalty
25	\$1,859,000,000	\$528,000,000	\$1,331,000,000
111	919,600,000	264,000,000	655,600,000
9	312,198,220	89,626,283	222,571,937
96	115,815,469	33,248,460	82,567,009
2	105,744,559	30,357,290	75,387,269
13	103,226,831	29,634,497	73,592,334
14	103,226,831	29,634,497	73,592,334
7	47,836,824	13,733,060	34,103,765

111. As shown above, Mr. Wagner increased his royalty opinion by as much as \$1.331 billion as a result of using his calculation of purported unjust profits as the “Baseline Royalty” rather than his calculation of purported avoided costs, and he provided no rationale for doing so.

ii. Mr. Wagner’s 110% Royalty Rate is Arbitrary, Not Tied to the Facts of the Case, and Does Not Accord with the Guidance of Georgia-Pacific

112. Mr. Wagner asserted that “the reasonable royalty that would be agreed to by the parties is a ten percent (10%) increase over the Baseline Royalty.”²⁰⁸ Thus, Mr. Wagner’s opinion is effectively that the reasonable royalty rate is 110% of purported incremental profits. However, Mr. Wagner did not explain the rationale for a 110% royalty rate, or provide a quantitative basis to support a 110% royalty rate. Although Mr. Wagner noted that his *Georgia-Pacific* Factor analysis resulted in identification of factors indicating lower, higher, and neutral royalty rates, he provided no objective analysis linking those factors to a 110% royalty rate. Notably, Mr. Wagner did not indicate that he even attempted to identify publicly available license agreements for comparable technology. As a result, Mr. Wagner’s 110% royalty rate is arbitrary because it is not based on objective facts or data, and is not tied to the facts of the case.

²⁰⁸ The Wagner Report, ¶ 439.

113. Not only is Mr. Wagner's 110% royalty rate entirely arbitrary, the notion that Uber would pay more than the purported present value of incremental profits realized from the alleged misappropriation of the Waymo Purported Trade Secrets is illogical and contrary to the licensing parameters set forth in *Georgia-Pacific* Factor No. 15. As recited in the Wagner Report, *Georgia-Pacific* Factor No. 15 states the following:²⁰⁹

*The amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement; that is, that amount which a prudent licensee – who desires, as a business proposition, to obtain a license to manufacture and sell a particular article embodying the patented invention – would have been willing to pay as a royalty **and yet be able to make a reasonable profit** and which amount would have been acceptable by a prudent patentee who was willing to grant a license. (emphasis added)*

114. Mr. Wagner's 110% royalty rate not only strips away all the incremental profits Uber would purportedly realize from the alleged misappropriation of the Waymo Purported Trade Secrets, but Mr. Wagner has also opined that Uber should pay an additional 10% premium. The notion that Uber would pay Waymo, a competitor, 10% more than all of the purported incremental benefit flowing from a license to the Waymo Purported Trade Secrets simply makes no sense and contradicts the premise of *Georgia-Pacific* factor 15. Mr. Wagner has effectively opined that Uber would be willing to incur losses, and subsidize a competitor, in order to receive a license to use the Waymo Purported Trade Secrets, which internal Google emails indicate Google placed little value on.²¹⁰ No willing, or rational, licensee would do so; and the notion is contrary to the guidance provided in *Georgia-Pacific* Factor No. 15.

115. Assuming Mr. Wagner's "Baseline Royalty" is not unreliable, which it is, a royalty rate that accords with the guidance of *Georgia-Pacific* Factor No. 15 would effectively allocate Mr. Wagner's "Baseline Royalty" amongst Uber and Waymo. Instead, Mr. Wagner's royalty rate

²⁰⁹ The Wagner Report, ¶ 435; and *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970).

²¹⁰ WAYMO-UBER-00084484.

allocates all of his “Baseline Royalty” (which is \$1.69 billion) to Waymo, and then, without justification, gives Waymo an additional 10% premium (which is an additional \$169 million).

116. For the reasons discussed above, Mr. Wagner’s 110% royalty rate is arbitrary, not tied to the facts of the case, and results in grossly overstated royalty damages.

117. Additionally, Mr. Wagner relied on a Waymo Profit and Loss statement (“P&L”) in purported support of his assertion that “[t]he potential profit opportunity to Waymo related to autonomous vehicles is dramatic.”²¹¹ Mr. Wagner further stated that “Waymo’s internal modeling of its profit opportunity within TaaS also indicates substantial potential profits,” and relied on these same projections in his analysis of *Georgia-Pacific* No. 8 to conclude that “Waymo expected to earn substantial profits from its TaaS offering during the hypothetical negotiation period.”²¹² However, Waymo’s forecasts, even if credible, are irrelevant to *Georgia-Pacific* factor 8, which requires consideration only of the “*established* profitability of the product.” Furthermore, the projections in the P&L statement, extending over 10 years into the future for an entity in an industry with no operational history, are entirely speculative.

118. Waymo employees responsible for either preparing the Waymo P&L or providing critical inputs for it confirmed that the projections Mr. Wagner made reference to are speculative. For example, Ming Su, former Finance Manager for Waymo, testified that forecasts are sometimes “best guesses” and “... the goal isn't necessarily to be accurate ... [t]he goal is to present a potential outcome,” as explained in his testimony below:²¹³

Q: Did he ever provide you with information that you used in the P&Ls?

A: I'm sure it's happened. I think sometimes in forecasting there's -- there's kind of like, you know, best guesses. Or there's kind of -- in areas where maybe there's no answers. You know I think as a leader, you have to set a target. And so you know in those times, you know,

²¹¹ The Wagner Report, ¶¶ 338 and 340 (citing WAYMO-UBER-00032541).

²¹² The Wagner Report, ¶¶ 339 and 414.

²¹³ Deposition of Ming Su, August 23, 2017, pgs. 40, 118, and 211.

maybe he'd step forward and, "Say this is the target that we're going to use."

Q: In any of the other P&Ls that you developed in the past, did you ever have to project out 10 years?

A: Yes.

Q: And how accurate were those projections?

A: No, accuracy is a -- it's a tough question to answer when it comes to something like 10 years out.

Q: What do you mean by that?

A: Because the goal isn't necessarily to be accurate, right? The goal is to present a potential outcome of the future and a potential range of outcomes for the future. It's not necessarily to nail it on the -- on the dot, because no one can truly predict the future.

119. Furthermore, the P&L statements were missing variables, such as the cost of "maintenance for the SDS modules," regarding which Mr. Su testified that he did not know if it would "be significant" because he needed to "see some numbers on what the maintenance cost will be," which could impact overall profitability projections.²¹⁴ Additionally, Mr. Willis, Director of Supply Chain Operations for Waymo, testified that: [REDACTED]

[REDACTED]

[REDACTED] However, Waymo's witnesses confirmed that projecting so far into the future increases the speculative nature of the projections and that they "don't think there's anyone that would suggest they're confident of anything occurring 10 years from now."²¹⁷

²¹⁴ Deposition of Ming Su, August 23, 2017, pgs. 271 – 276.

²¹⁵ Deposition of Tim Willis, August 18, 2017, pgs. 114 – 115, 204, 211, 220, 230, 336, and 346.

²¹⁶ Deposition of Ming Su, August 23, 2017, pgs. 250 – 251.

²¹⁷ Deposition of Ming Su, August 23, 2017, pgs. 178 – 179, 216, and 251.

iii. Mr. Wagner Did Not Consider the Cost of Independently Developing the Waymo Purported Trade Secrets as a Cap to Reasonable Royalty

120. According to Mr. Wagner “design around times are already incorporated into the Baseline Royalty.”²¹⁸ However, Mr. Wagner failed to consider the costs of designing around the Waymo Trade Secrets. Given that Uber would not be willing to pay a royalty that was more than the cost to independently develop the Waymo Purported Trade Secrets, the cost to independently develop the Waymo Purported Trade Secrets is a cap on reasonable royalty damages.

121. As discussed above, Mr. Wagner’s calculation of purported the costs Uber avoided as a result of allegedly misappropriating the Waymo Purported Trade Secrets is unreliable and grossly overstates unjust enrichment, if any. However, as discussed in detail below, I have calculated the cost Uber would incur to independently develop the Waymo Purported Trade Secrets. In the following table I have compared Mr. Wagner’s reasonable royalty opinion to the cost Uber would incur to independently develop the Waymo Purported Trade Secrets, which is the cap to the reasonable royalty the parties would have agreed to at the hypothetical negotiation.

Trade Secret No.	Mr. Wagner’s “Reasonable Royalty”	Cost to Independently Develop/Reasonable Royalty Cap	Amount Mr. Wagner Overstated Reasonable Royalties
25	\$1,859,000,000	No Value	\$1,859,000,000
111	919,600,000	200	919,599,800
9	312,198,220	112,160	312,086,060
96	115,815,469	114,040	115,701,429
2	105,744,559	208,920	105,535,639
13	103,226,831	126,080	103,100,751
14	103,226,831	126,080	103,100,751
7	47,836,824	43,600	47,793,224

²¹⁸ The Wagner Report, ¶ 420.

iv. Conclusions Regarding Mr. Wagner's Reasonable Royalty Opinion

122. Mr. Wagner's "Baseline Royalty" is unreliable and grossly overstates reasonable royalty damages for the same reasons that Mr. Wagner's opinion regarding purported unjust profits is unreliable and grossly overstates unjust enrichment damages. Additionally, Mr. Wagner's 110% royalty rate is arbitrary, not tied to the facts of the case, and results in grossly overstated royalty damages. Furthermore, Mr. Wagner failed to acknowledge that the cost to independently develop the Waymo Purported Trade Secrets is a cap to reasonable royalty damages. For at least these reasons, Mr. Wagner's reasonable royalty opinion is unreliable and grossly overstates reasonable royalty damages.

E. Mr. Wagner's Unjust Enrichment Opinion Regarding Waymo Purported Trade Secret No. 90

123. Mr. Wagner explained his opinion regarding unjust enrichment related to Waymo Purported Trade Secret No. 90 as follows: "Given Dr. Hesselink's opinion that Tyto used Trade Secret No. 90 to develop its technology, and Tyto was acquired by Defendants in May 2016, I have used the \$8 million cash consideration paid in the Tyto acquisition to value the amount of unjust enrichment to Uber based on its misappropriation of Trade Secret No. 90."²¹⁹

i. Mr. Wagner's Opinion is Not Based on Sound Methodology

124. Mr. Wagner failed to explain why the cash consideration Ottomotto paid to acquire Tyto is a reasonable measure of the value by which Uber was purportedly unjustly enriched as a result of the alleged misappropriation of Waymo Purported Trade Secret No. 90. Despite discussing numerous factors that contributed to the value Ottomotto acquired when it purchased Tyto, Mr. Wagner merely asserted that the entire \$8 million cash consideration paid to acquire Tyto represented the amount of unjust enrichment to Uber as a result of the alleged misappropriation of Waymo Purported Trade Secret No. 90.²²⁰ Mr. Wagner specifically noted:

²¹⁹ The Wagner Report, ¶ 307.

²²⁰ The Wagner Report, ¶ 307.

- Tyto’s intellectual property – identified as “[a]ll trade secrets, copyrights, and software owned by the Seller and used in the operation of the business as currently conducted,” as well as “[a]ll rights in and to all inventions owned by the Seller and used in the operation of the Business as currently conducted,” including four pending patent applications;
- Tangible assets – identified as “[a]ll tool, equipment, parts and inventory used to build and assemble fiber lasers and laser scanners. All equipment used to test and calibrate fiber lasers and laser scanners”; and
- Employees – \$1,440,000 of the total \$8,000,000 million cash consideration was to be paid to “Transferred Employees,” along with 2.75% of Ottomotto equity.

125. Mr. Poetzscher, Vice President of Corporate Development at Uber, testified that the Ottomotto/Tyto Acquisition was a “talent acquisition.”²²¹ According to Mr. Wagner, he “recognized that in addition to the technology, Defendants were also acquiring five employees from Tyto. However, Defendants also paid additional consideration beyond the \$8 million cash in the form of 2.75% equity in Ottomotto.”²²² Mr. Wagner failed to explain how this statement justifies apportionment of the entire \$8 million cash consideration to Waymo Purported Trade Secret No. 90 in light of the fact that the Ottomotto/Tyto Acquisition was a talent acquisition.

126. Mr. Wagner did not make any effort to identify the portion of the \$1,440,000 that was paid to “Transferred Employees,” if any, was consideration paid for Waymo Purported Trade Secret No. 90, as opposed to consideration to retain talented engineers. Furthermore, it does not appear that Mr. Wagner apportioned any of the cash consideration to tangible assets or intellectual property other than Waymo Purported Trade Secret No. 90. Mr. Wagner quoted the following opinion of Dr. Hesselink:²²³

With regards to Trade Secret No, 90, ... Defendants’ accelerated their knowledge of fiber-laser technology by acquiring Tyto LiDAR in the Spring of 2016. For several years prior to this, Tyto LiDAR – at the direction of Anthony Levandowski – exploited Waymo’s trade secret information regarding fiber laser technology in order to create a lower cost design for their “Owl” device... For example at least by November 2013, Tyto LiDAR had “defined a plan to reduce the cost of the fiber laser

²²¹ Deposition of Cameron Poetzscher, June 19, 2017, pg. 358.

²²² The Wagner Report, ¶ 307.

²²³ The Wagner Report, ¶ 298.

and bring BOM cost down to \$9,500 by January 2014.” ... Tyto’s continued work on lowering the cost of its own, custom-built fiber laser from late 2013 until its acquisition by Ottomotto in May 2016 further enhanced Tyto’s value to Defendants...

127. Even if Tyto had misappropriated Waymo Purported Trade Secret No. 90 as alleged, Mr. Wagner has not accounted for the contribution “Tyto’s continued work on lowering the costs of its own, custom-built fiber laser from late 2013 until its acquisition by Ottomotto in May 2013,” which is not attributable to Waymo Purported Trade Secret No. 90, made to the ultimate \$8 million cash consideration. Furthermore, the notion that Tyto LiDAR exploited Waymo’s trade secret information “for several years prior to the Spring of 2016,” is undermined by the fact that Waymo alleged Mr. Levandowski misappropriated the Waymo Trade Secrets in December 2015.²²⁴

128. For the reasons discussed above, Mr. Wagner did not perform a proper apportionment, rendering his opinion of unjust enrichment related to Waymo Purported Trade Secret No. 90 unreliable.

ii. Mr. Wagner’s Opinions are Internally Inconsistent, Demonstrating Their Unreliability

129. Mr. Wagner’s theory of purported unjust enrichment for Waymo Purported Trade Secret No. 90 contradicts his theories of unjust enrichment related to the other Waymo Purported Trade Secrets, demonstrating that neither theory is reliable.

130. Mr. Wagner relied on Dr. Hesselink for the understanding that “Uber’s misappropriation of Trade Secret No. 90 has saved it two years and five months, based on Defendants’ acquisition of Tyto.”²²⁵ Thus, it is Mr. Wagner’s understanding that Waymo Purported Trade Secret No. 90 saved Uber five months of development time more than Waymo Purported Trade Secret No. 25, which Mr. Wagner understands saved Uber two years of development time.²²⁶ Nevertheless, Mr. Wagner opined that unjust enrichment related to Waymo Purported Trade Secret No. 90 was \$8

²²⁴ First Amended Complaint, ¶¶ 43 – 47.

²²⁵ The Wagner Report, ¶ 299.

²²⁶ The Wagner Report, ¶ 284.

million, whereas he opined that unjust enrichment related to Waymo Purported Trade Secret No. 25 was \$1.69 billion.²²⁷

131. Despite Mr. Wagner's understanding of the development time Waymo Purported Trade Secret Nos. 25 and 90 purportedly saved Uber (two years, and two years and five months, respectively), he opined that unjust enrichment related to the alleged misappropriation of Waymo Purported Trade Secret No. 25 is 211.25 times more than unjust enrichment related to the alleged misappropriation of Waymo Purported Trade Secret No. 90.²²⁸ The fact that Ottomotto actually paid an amount that is 211.25 less to acquire Tyto (and thereby allegedly misappropriate a trade secret that purportedly saved Uber a relatively greater amount of development time) than Mr. Wagner's opinion of unjust enrichment related to Waymo Purported Trade Secret No. 25 undermines Mr. Wagner's other unjust enrichment opinions and illuminates their unreliability.

F. Mr. Wagner's Irreparable Harm Opinion

132. According to Mr. Wagner, absent an injunction, Uber's alleged misappropriation of the Waymo Purported Trade Secrets will continue and purportedly cause "significant and recurring harm to Waymo," including:²²⁹

- Continued misappropriation of Waymo's trade secrets;
- Potential public disclosure of Waymo's trade secrets;
- Loss of Waymo's technological lead, and by extension, market entry opportunity;
- Greater competition in the AV space; and
- Sales made by Wayo at lower prices than would have occurred but for Uber's misappropriation.

²²⁷ The Wagner Report, ¶¶ 285 – 286, and 307.

²²⁸ [$\$1,690,000,000 \div \$8,000,000 = 211.25$]. Mr. Wagner's reasonable royalty opinion related to Waymo Purported Trade Secret No. 25 is 232.375 time greater than his unjust enrichment opinion related to Waymo Purported Trade Secret No. 90 [$\$1,859,000,000 \div \$8,000,000 = 232.375$].

²²⁹ The Wagner Report, ¶ 330.

133. In summary, it is Mr. Wagner's opinion that Uber's alleged misappropriation of the Waymo Purported Trade Secrets will accelerate commercialization of Uber's AV technology, allowing it to enter the market earlier and thereby having "a significant impact on Waymo's future profitability."²³⁰ However, Mr. Wagner stated repeatedly that he is unable to quantify the lost profits Waymo will purportedly suffer as a result of the alleged misappropriation of the Waymo Purported Trade Secrets.²³¹

i. Any Purported Lost Profits Waymo Will Allegedly Suffer are Speculative

134. As of the date of this report, neither Waymo nor Uber have commercialized their respective AV technologies or realized profits from them. According to Mr. Emil Michael, "the launch of a ... autonomous vehicle that can generate revenue without any safety driver in there is still years away."²³²

135. Contrary to Waymo's own assessment of its likelihood of success and the many risk factors it identified, Mr. Wagner's theory of irreparable harm is premised on the assumption that Waymo will successfully commercialize its AV technology according to its "Stated Plan of Record," and that Uber's alleged misappropriation of the Waymo Purported Trade Secrets is the only thing that could impede Waymo's success. As such, Mr. Wagner's irreparable harm theory is also premised on the assumption that Uber will successfully commercialize its AV technology in order to compete with Waymo, and that the alleged misappropriation of the Waymo Purported Trade Secrets will accelerate Uber's ability to do so.

136. For the numerous reasons discussed above, successful commercialization of Waymo's and Uber's respective AV technologies sometime in the future is far from certain. As a result, Mr. Wagner's opinion regarding the irreparable harm Waymo will suffer as a result of the alleged misappropriation of the Waymo Purported Trade Secrets is mere speculation.

²³⁰ The Wagner Report, ¶¶ 330, 337 and 368.

²³¹ The Wagner Report, ¶¶ 123, 337, 366, and 368.

²³² Deposition of Emil Michael, July 28, 2017, pgs. 137 – 138.

ii. Mr. Wagner Did Not Establish a Causal Link Connecting the Waymo Purported Trade Secrets to the Purported Irreparable Harm

137. Mr. Wagner failed to establish a causal link between the alleged misappropriation of the Waymo Purported Trade Secrets and the irreparable harm that Waymo will purportedly suffer sometime in the future. As discussed above, Uber contends that the Waymo Purported Trade Secrets have not been utilized in Uber's AV technology.²³³ Furthermore, according to Dr. McManamon, he has not seen any indication that Uber has utilized Waymo Purported Trade Secrets Nos. 25 or 111.²³⁴ Similarly, according to Dr. Lebby, he has not seen any indication that Uber has utilized the remaining Waymo Purported Trade Secrets in its AV technology.²³⁵ If, as Uber contends, and Dr. McManamon and Dr. Lebby opined, Uber has not used the Waymo Purported Trade Secrets in its AV technology, it cannot be the case the alleged misappropriation of the Waymo Purported Trade Secrets will cause Waymo harm, irreparable or otherwise.

iii. Mr. Wagner Failed to Acknowledge the Distinction Between Time to Independently Develop the Waymo Purported Trade Secrets and Accelerated Development

138. As discussed above, Mr. Wagner's theory of irreparable harm is premised on the notion that Uber's alleged misappropriation of the Waymo Purported Trade Secrets will accelerate Uber's successful commercialization of its AV technology, and thereby allow Uber to compete with Waymo more rapidly than it otherwise would have. However, as discussed above, Mr. Wagner has conflated the concept of time required to independently develop the Waymo Purported Trade Secrets with accelerated commercialization of Uber's AV technology.

139. The alleged misappropriation of the Waymo Purported Trade Secrets did not accelerate commercialization of Uber's AV technology, because Uber could have independently developed

²³³ Uber Technologies, Inc. and Ottomotto LLC's Answer to First Amended Complaint and Affirmative Defenses, ¶¶ 14-15; and Defendant Uber Technologies, Inc. and Ottomotto LLC's Fifth Supplemental Responses to Waymo's First Set of Common Interrogatories (Nos. 1 – 3), Response to Common Interrogatory No. 1.

²³⁴ Interview of Dr. McManamon.

²³⁵ Interview of Dr. Lebby.

the Waymo Purported Trade Secrets in parallel with its existing development efforts by employing additional engineering resources.²³⁶ As with his opinions regarding unjust enrichment, Mr. Wagner assumed that independent development of the Waymo Purported Trade Secrets would have to be done serially, adding calendar days to the commercialization of Uber's AV technology.

140. Given that the alleged misappropriation of the Waymo Purported Trade Secrets has not accelerated commercialization of Uber's AV technology, Mr. Wagner's theory, that Uber will enter the market and compete with Waymo sooner than it otherwise would have as a result of the alleged misappropriation, fails. As a result, and as with his opinions regarding unjust enrichment, Mr. Wagner's conflation of time to independently develop the Waymo Purported Trade Secrets with accelerated commercialization of Uber's AV technology renders his opinion regarding irreparable harm unreliable.

iv. Mr. Wagner Has Not Established that Being First to the AV TaaS Market is Necessary for Waymo's Success

141. Mr. Wagner provided a discussion regarding Waymo's perception that being first to the AV TaaS market is important to Waymo's long-term success.²³⁷ However, it is not necessarily the case that being first to market with new technology is always the best for the long-term success of a venture. A 2015 article in Forbes stated:²³⁸

Many entrepreneurs think that they need to launch as soon as possible, to get ahead of demand and anticipate what's coming. Driven further by the incorrect notion that it's essential to beat everyone else to the punch, they're often left facing a market that isn't ready and a product that's not quite there yet.

²³⁶ Interview of Dr. Lebby and Dr. McManamon.

²³⁷ The Wagner Report, ¶¶ 343 – 351.

²³⁸ Lipson, Jesse, *Being First To Market Isn't Always Best: Ask Microsoft About Apple Watch*, Forbes, April 29, 2015.

142. Although being the first-mover confers certain advantages, it does not guarantee that a firm will enjoy continued success.²³⁹ In fact, in some industries, it is much better to enter the market late.²⁴⁰ According to a 2013 KelloggInsight article, one study showed that in just 15 of 50 product categories, pioneers were more successful than late movers.²⁴¹ This is because pioneers tend to launch products without fully understanding customers' problems and the features that solve those problems.²⁴² Learning from a pioneer's mistakes and experience is a key factor of why late entrants are often more successful than pioneers.²⁴³ Innovative late entrants may also enjoy the same benefits as a pioneer by redefining and reshaping a product category.²⁴⁴ Thus, there are inherent advantages to being a pioneer and a late entrant.²⁴⁵

143. Other factors that contribute to whether a pioneer or late entrant enjoy continued success are the expected life of the product and whether value of the product is highly subjective.²⁴⁶ In a product category where the product's life cycle is short and/or the value of a product is highly subjective, a pioneer may have the greater advantage.²⁴⁷ However, in a product category where objective standards are more important than subjective factors, the late entrants have a greater advantage.²⁴⁸ For example, in the car industry, many of the elements of buying a car are objective such as safety, price, and gas mileage.²⁴⁹ Therefore, a late entrant such as Toyota's Lexus can create remarkable success 100 years after Karl Benz developed the first car.²⁵⁰

144. History is filled with examples of successful firms that were never first. Boeing, for example, did not pioneer modern jet travel, nor was Google the first internet search engine.²⁵¹

²³⁹ <https://hbr.org/2005/04/the-half-truth-of-first-mover-advantage;>

https://insight.kellogg.northwestern.edu/article/the_second_mover_advantage.

²⁴⁰ https://insight.kellogg.northwestern.edu/article/the_second_mover_advantage.

²⁴¹ https://insight.kellogg.northwestern.edu/article/the_second_mover_advantage.

²⁴² <http://www.businessinsider.com/steve-blank-first-mover-advantage-overrated-2010-10.>

²⁴³ https://insight.kellogg.northwestern.edu/article/the_second_mover_advantage.

²⁴⁴ https://insight.kellogg.northwestern.edu/article/the_second_mover_advantage.

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²⁵⁰ https://insight.kellogg.northwestern.edu/article/the_second_mover_advantage.

²⁵¹ https://insight.kellogg.northwestern.edu/article/the_second_mover_advantage.

Other examples include: Facebook, LinkedIn, Twitter, Groupon, Uber, Alibaba, and Spotify.²⁵² In the ride-share market, pioneer Sidecar, one of the first apps to let users request a car, shut down its operations in 2015 after it struggled to raise funding to compete with Lyft and Uber.²⁵³

145. Thus, while Waymo currently perceives that having a head-start in the AV TaaS industry will be critical to its success, it is yet to be seen whether or not a first-mover advantage is actually beneficial to Waymo's long-term success. Accordingly, Mr. Wagner's theory of the irreparable harm Waymo will purportedly suffer as a result of Uber allegedly shortening Waymo's head-start by misappropriating the Waymo Purported Trade Secrets is undermined to the extent that having a head-start does not actually provide long-term benefits in the AV TaaS market.

146. Moreover, Waymo would not be able to enjoy a first-mover advantage in the traditional TaaS market since other firms, like Uber and Lyft, have been in this market for years without AV technology. Thus, to the extent Waymo's strategy is to offer a differentiated TaaS product, Waymo must overcome significant barriers to compete with entrenched competitors in the traditional TaaS market. In fact, Waymo identified Uber as the U.S. market leader in TaaS, and as an "extremely formidable" force that could combat Waymo's entry into TaaS.²⁵⁴

VII. ANALYSIS OF ECONOMIC DAMAGES RESULTING FROM ALLEGED MISAPPROPRIATION OF THE WAYMO PURPORTED TRADE SECRETS

147. Trade secrets damages can only be recovered if there is a finding of liability. Accordingly, solely for purposes of evaluating damages, if any, owed to Waymo, I have been asked to assume that the Waymo Purported Trade Secrets are in fact trade secrets and were misappropriated by Uber. It is my understanding that Waymo may be entitled to recover actual damages based upon the value of what has been lost and/or the value of what has been gained by the Uber. I understand that remedies for misappropriation of trade secrets under the DTSA include the following:²⁵⁵

²⁵² <https://techcrunch.com/2015/06/17/the-last-mover-advantage/>.

²⁵³ <https://www.forbes.com/sites/briansolomon/2015/12/29/ride-share-pioneer-sidecar-shuts-down-outmuscle-by-uber-and-lyft/#3641cf8629fe>.

²⁵⁴ WAYMO-UBER-00004175 – 194, at 177 and 184.

²⁵⁵ 18 U.S.C. § 1836.

- Damages for actual loss caused by the misappropriation;
- Damages for any unjust enrichment caused by the misappropriation of the trade secret that is not addressed in damages for actual loss; and
- A reasonable royalty for the misappropriator's unauthorized disclosure or use of the trade secret in lieu of damages measured by any other method.

148. The CUTSA provides the same remedies for misappropriation of trade secrets as does the DTSA.²⁵⁶ As a result, an analysis of economic damages resulting from the alleged misappropriation of the Waymo Purported Trade Secrets applies to Waymo's claims under both the DTSA and the CUTSA.

149. It is my understanding that courts take a variety of approaches to determine the appropriate damages in trade secret misappropriation cases. Consistent with the remedies provided under the DTSA and the CUTSA, as outlined above, the calculation of damages can be measured in several different ways:²⁵⁷

A. Loss Caused by the Misappropriation:

- Value of the Trade Secrets. If the value of the trade secret(s) has been destroyed through misappropriation, the owner can be awarded the value of the secret at the time of the misappropriation.²⁵⁸
- Actual Damages/Lost Profits. This represents the profits, if any, forgone by the plaintiff that resulted from the unauthorized use of the trade secrets.²⁵⁹

B. Unjust Enrichment Caused by the Misappropriation:

- Disgorgement of Gains. This involves the disgorgement of defendants' gains, if any, attributable to its unauthorized use of the trade secrets. Such gains can be measured by defendants' profits, head start advantage and/or avoided costs.²⁶⁰

²⁵⁶ Cal. Civ. Code § 3426.3. A reasonable royalty is only available under the CUTSA if the claimant is unable to prove either lost profits or unjust enrichment.

²⁵⁷ The measures of recovery discussed are not all additive, and, in fact, some may be mutually exclusive.

²⁵⁸ Weil, et al., *Litigation Services Handbook (Fifth Edition)*, pg. 18.38.

²⁵⁹ Weil, et al., *Litigation Services Handbook (Fifth Edition)*, pg. 18.37.

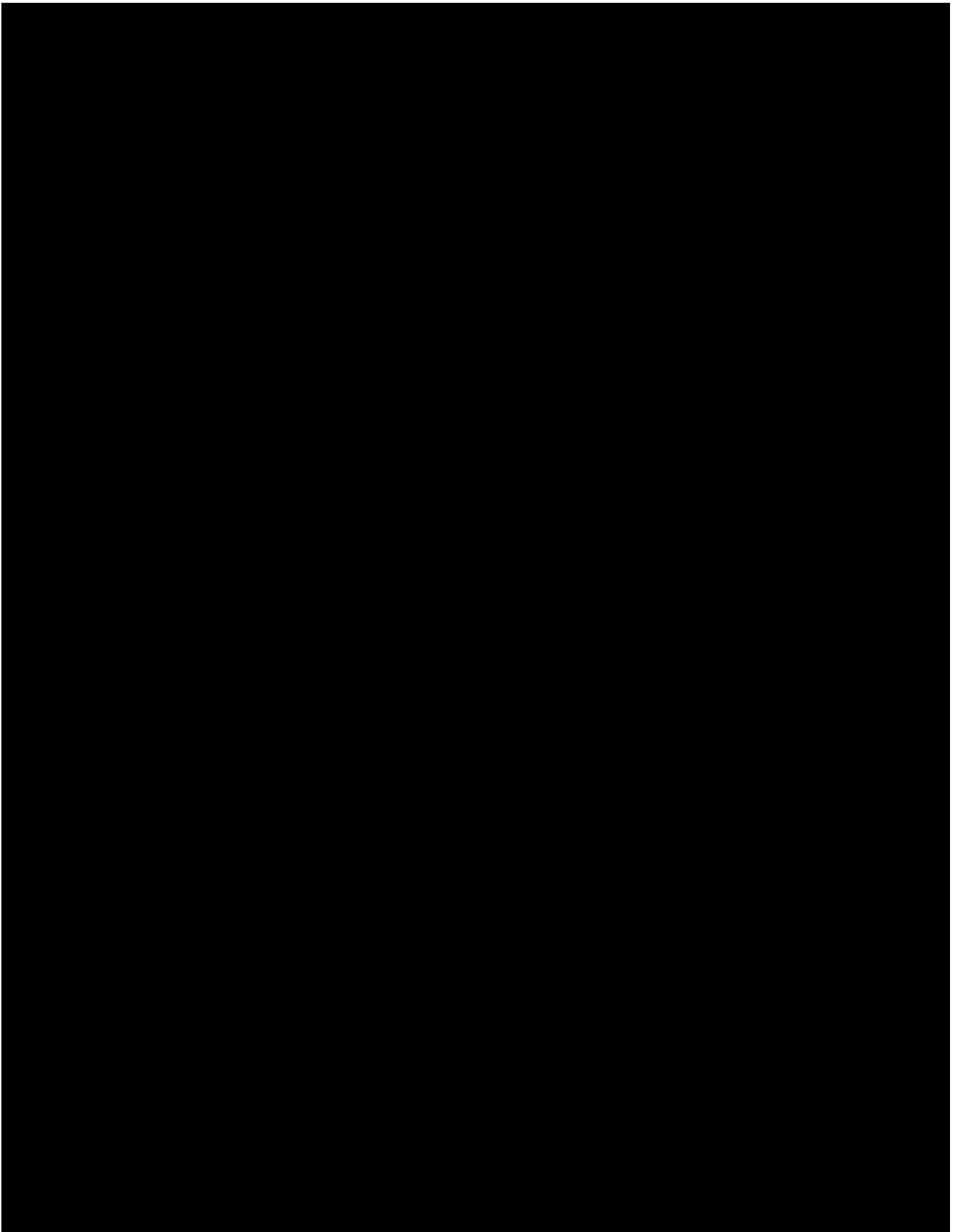
²⁶⁰ Weil, et al., *Litigation Services Handbook (Fifth Edition)*, pg. 18.39.

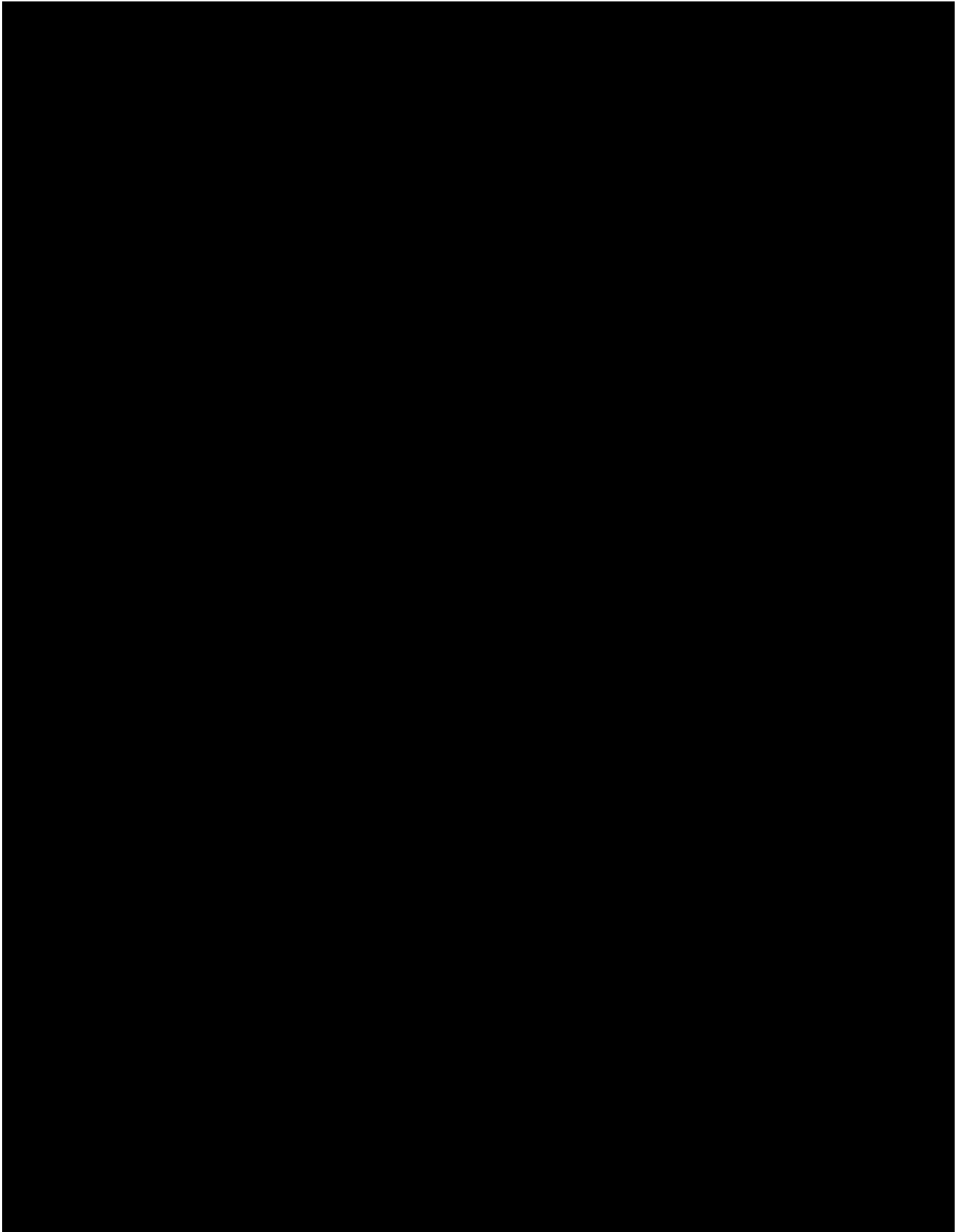
- C. Reasonable Royalty: This measures the royalty that a defendant would have been willing to pay, and a plaintiff would have been willing to accept, for the use of the trade secrets. A reasonable royalty for the allegedly misappropriated trade secrets is typically determined with consideration of the factors set forth in *Georgia Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970).²⁶¹

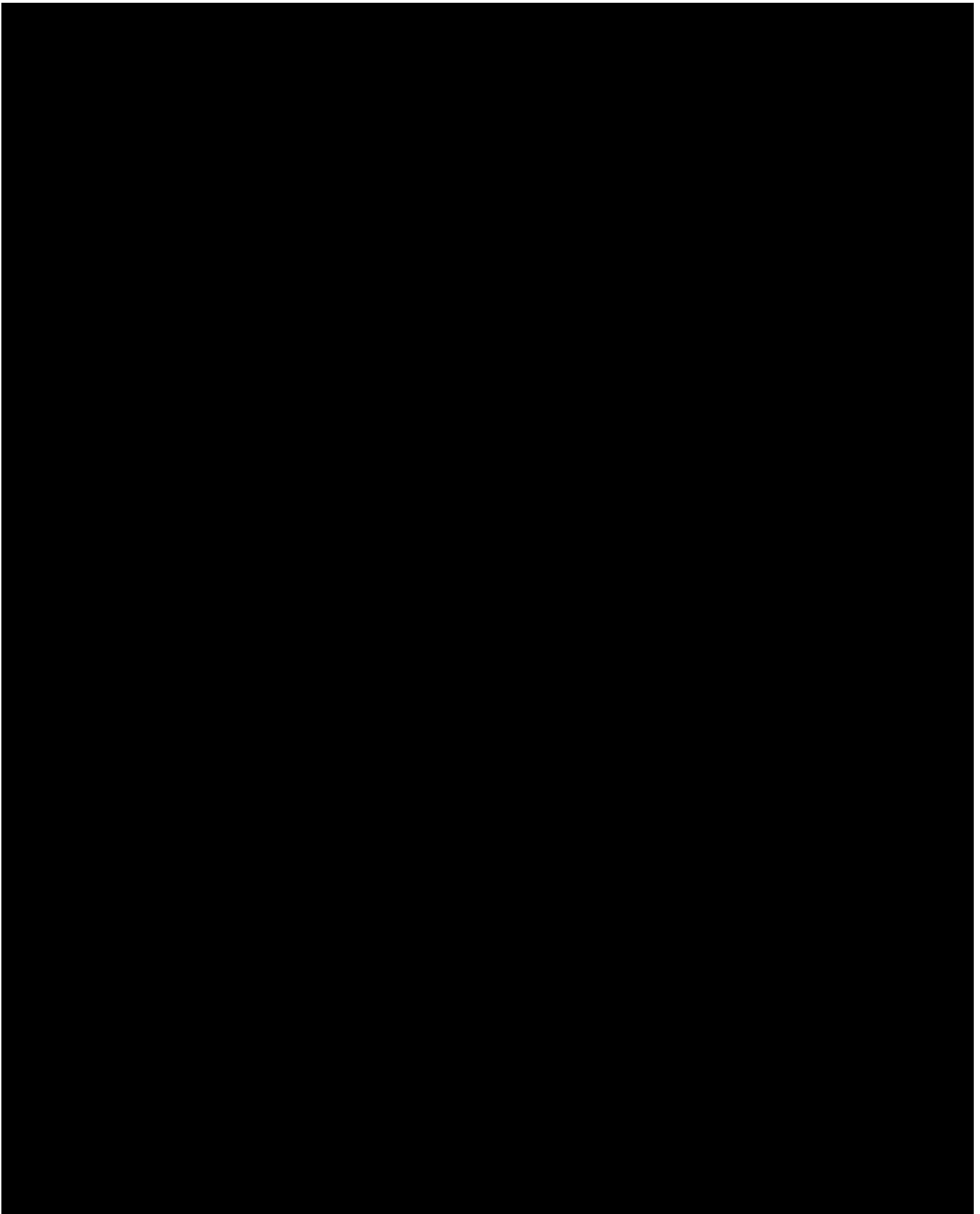
150. As of the date of issuance of this report, I have not seen any evidence that the Waymo Purported Trade Secrets have been destroyed or any profits forgone by Waymo as a result of the alleged misappropriation by Uber. In fact, according to Mr. Wagner, “Waymo is not seeking lost profits for its theft of trade secrets causes of action at this time.”²⁶² As a result, my analysis of damages for the alleged misappropriation of the Waymo Purported Trade Secrets is limited to Uber’s unjust enrichment, if any, and an analysis of a reasonable royalty. I discuss my analysis of these remedies in the sections below.

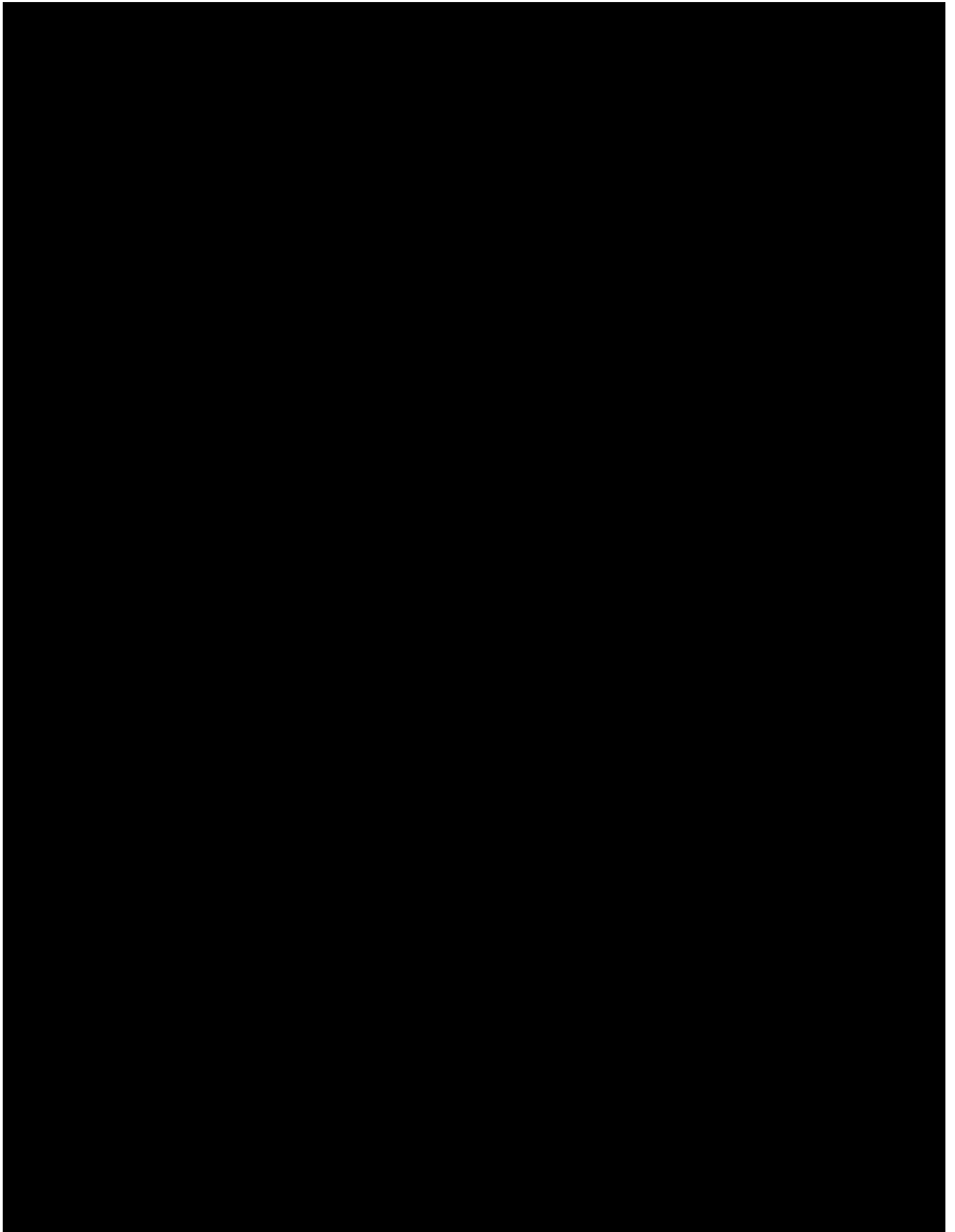
²⁶¹ *RKI, Inc. v. Grimes*, 200 F. Supp. 2d 916, 926-27 (N.D. Ill. 2002); *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970); Weil, et al., *Litigation Services Handbook (Fifth Edition)*, pg. 18.34.

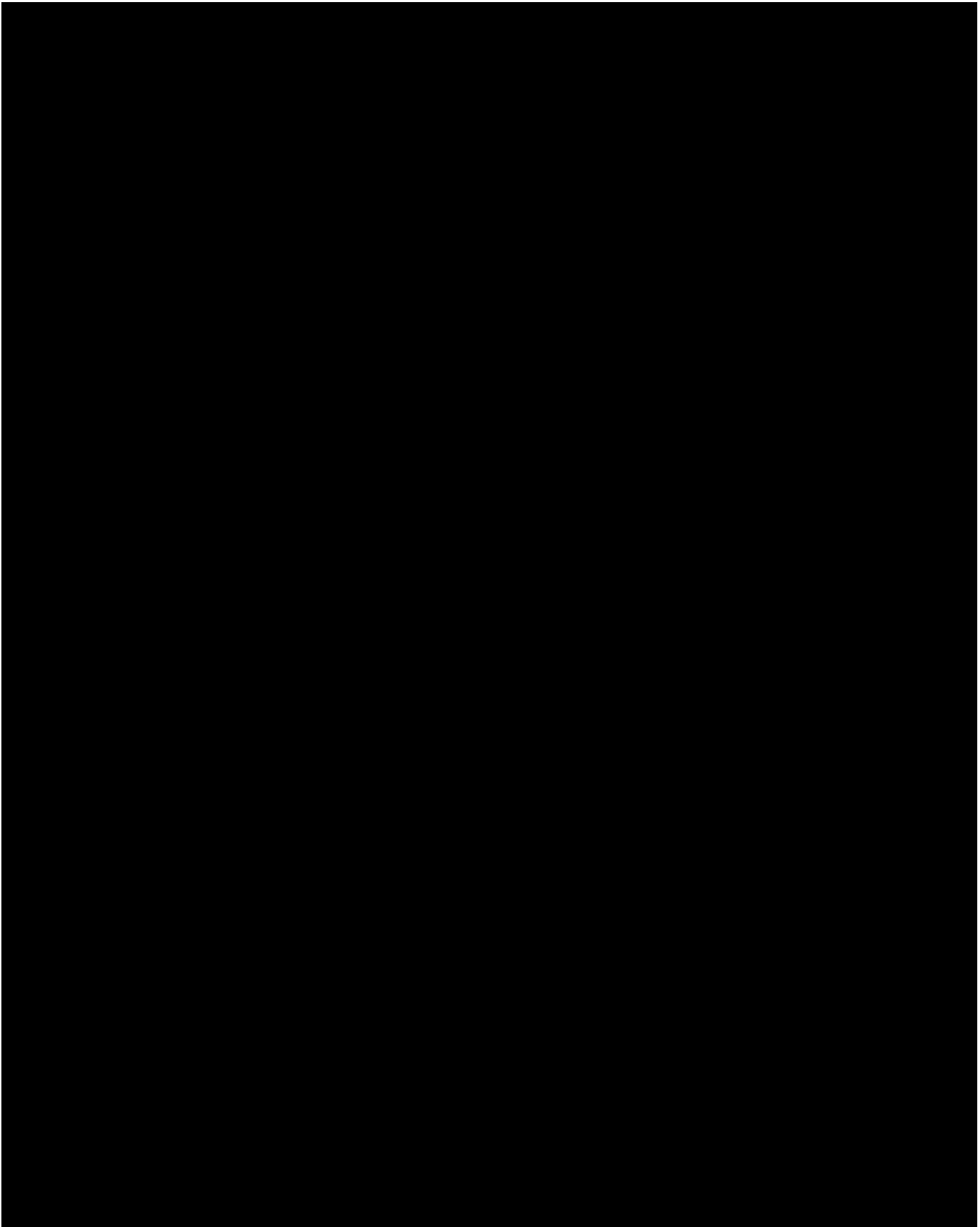
²⁶² The Wagner Report, ¶ 263.

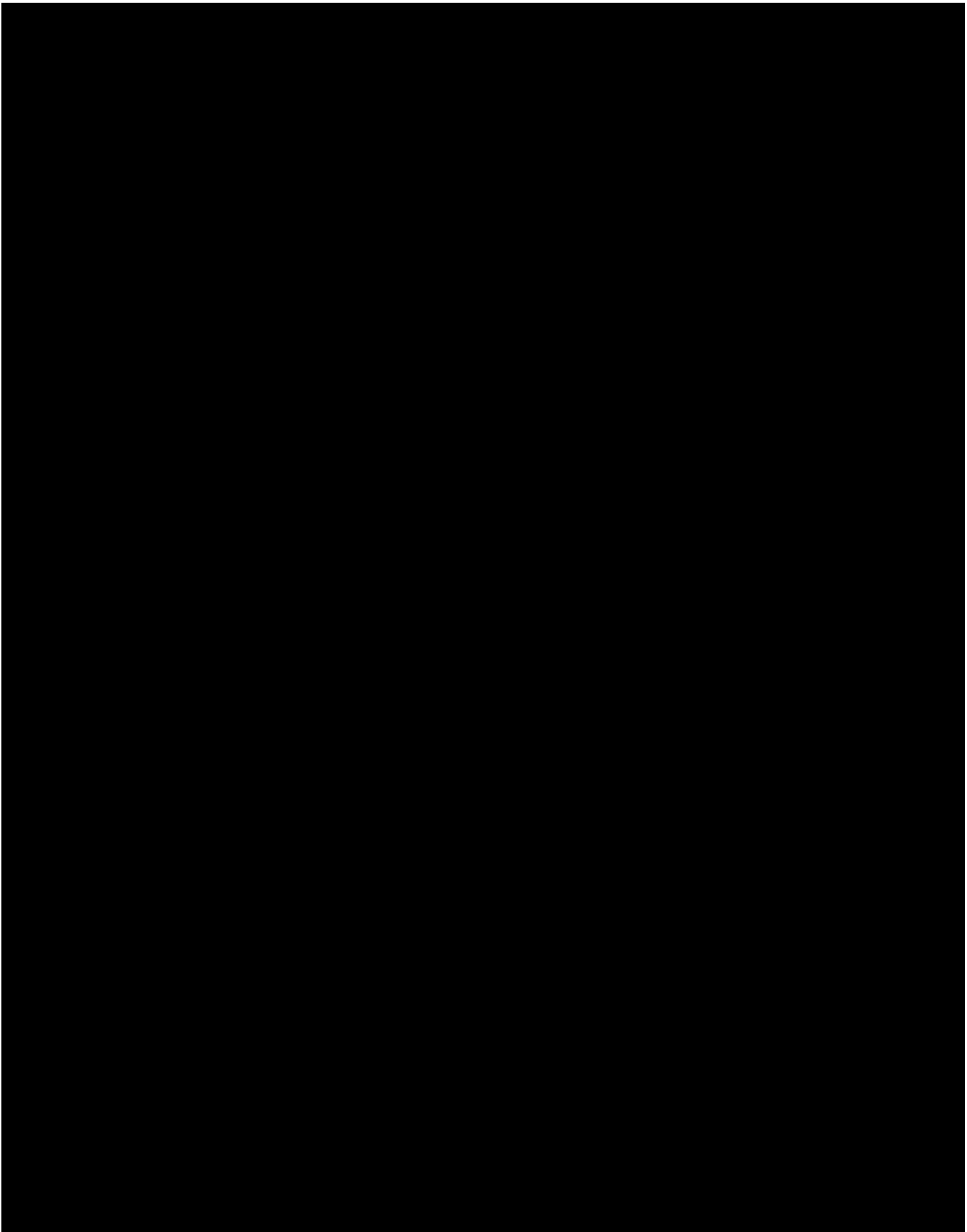


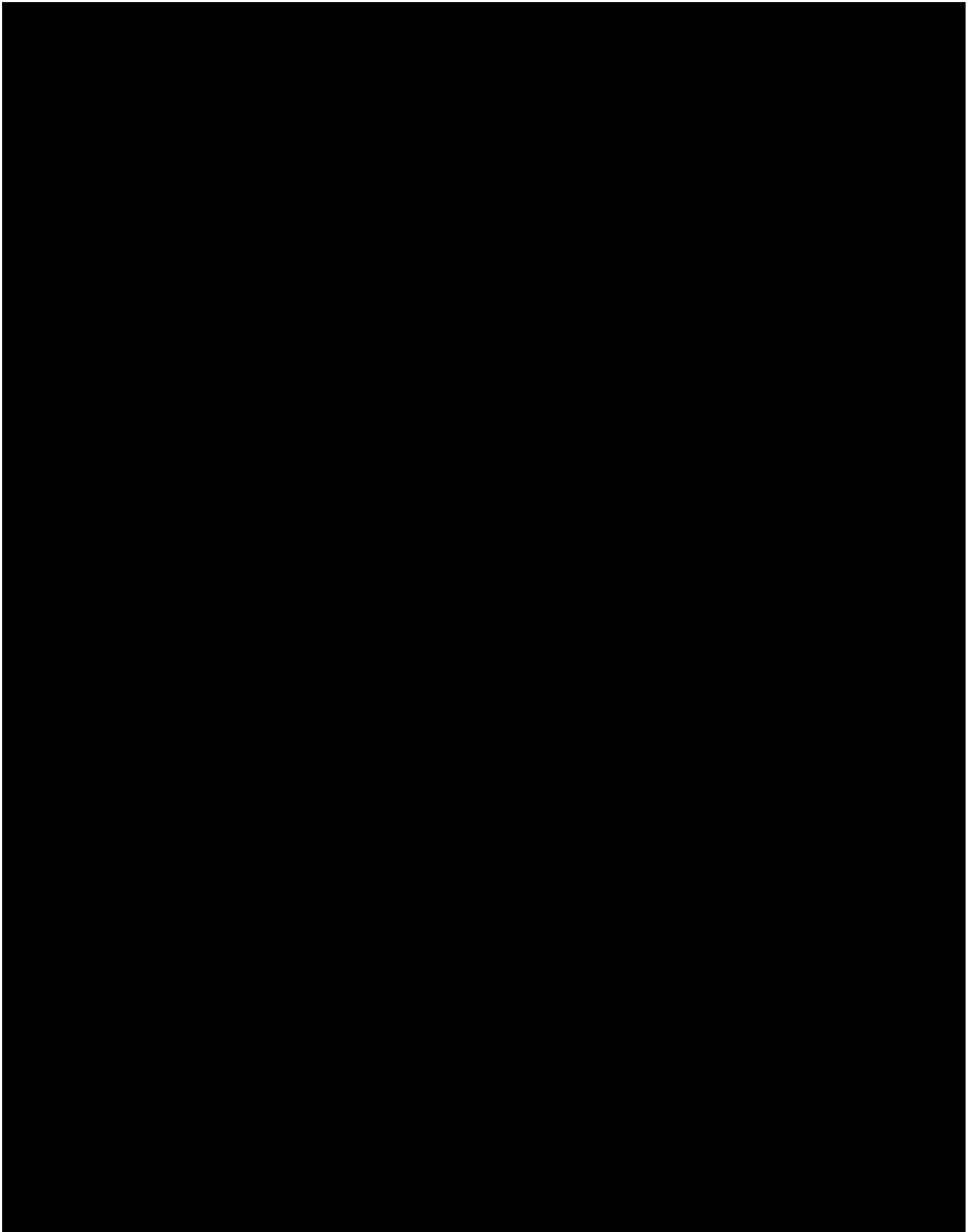


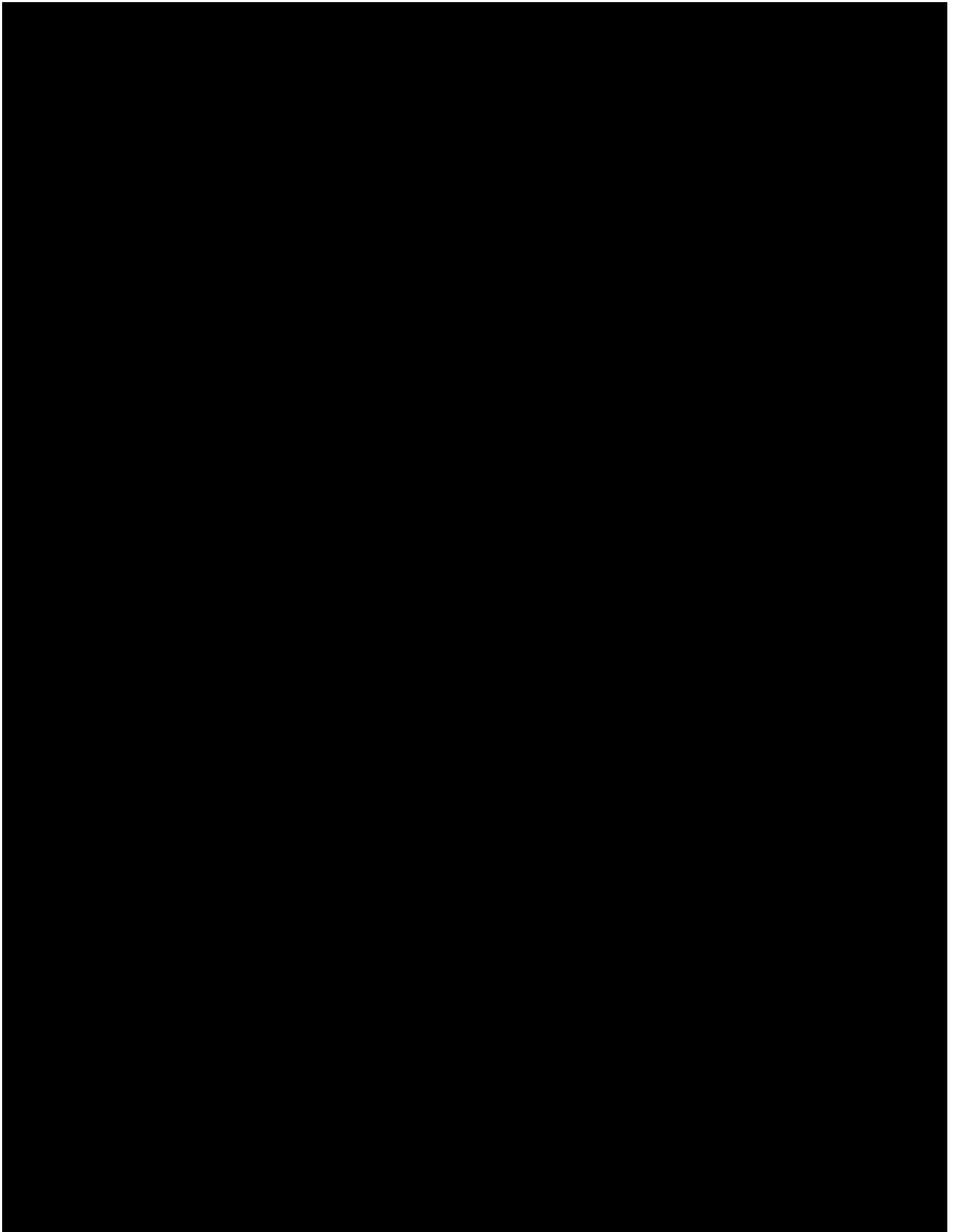


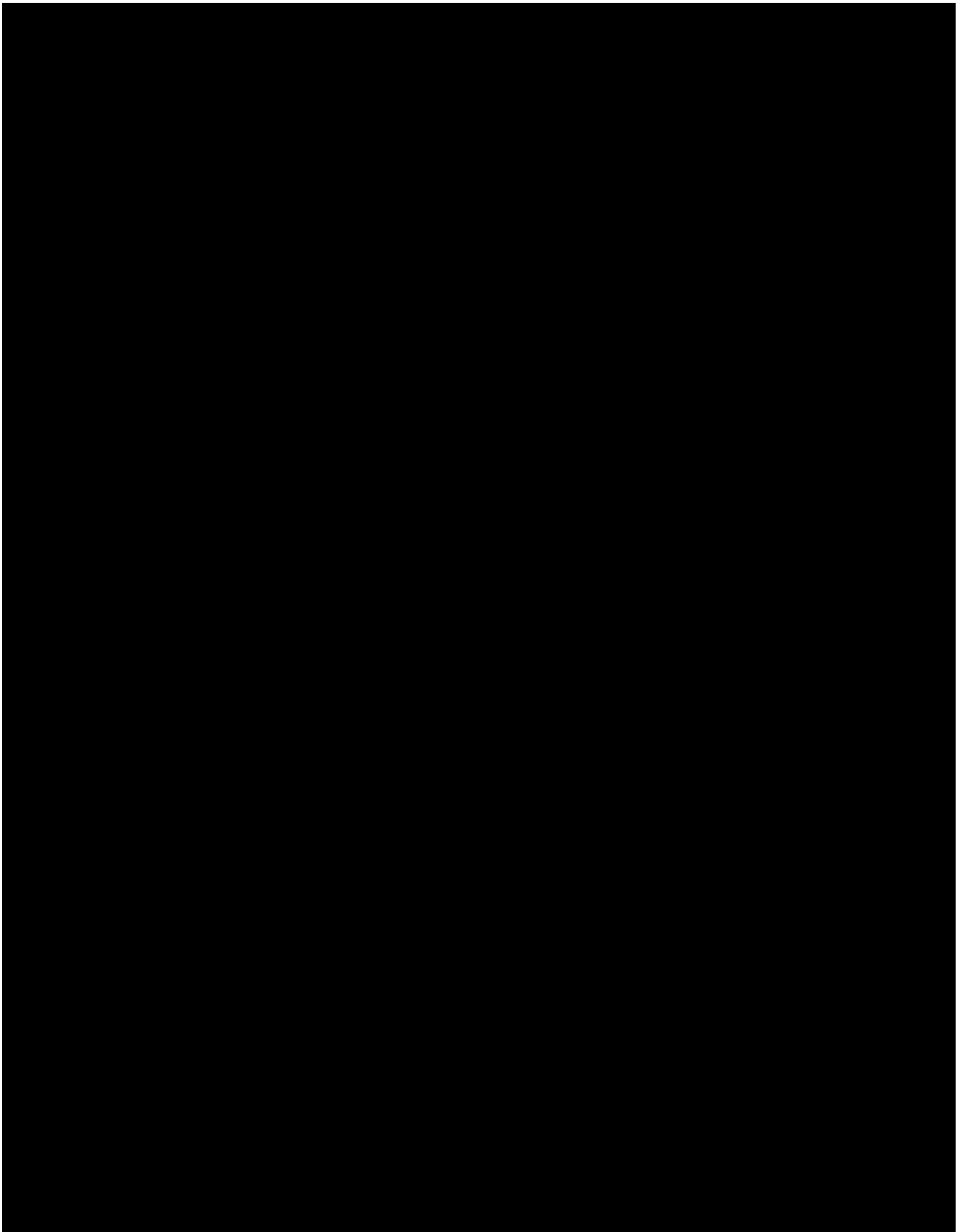


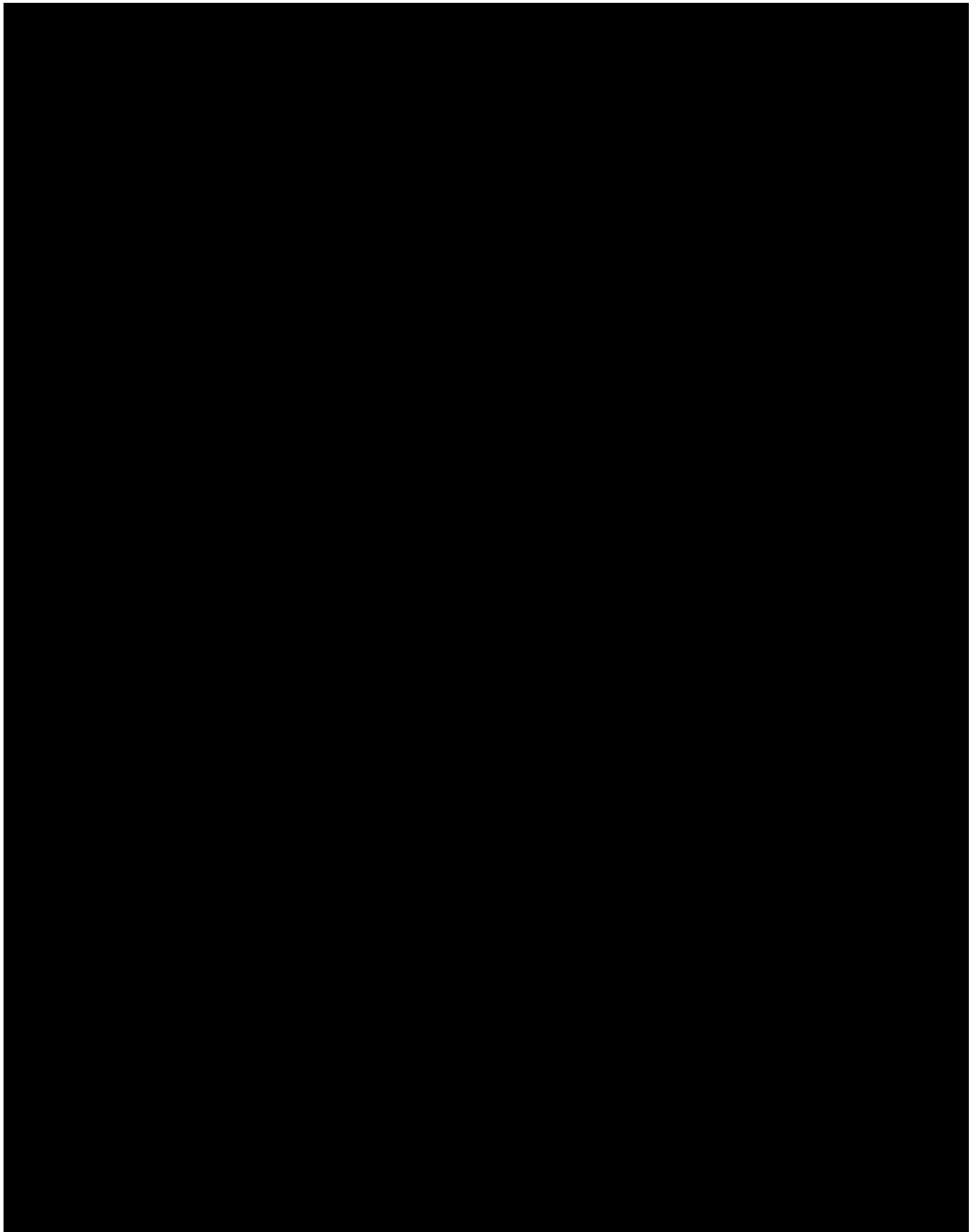


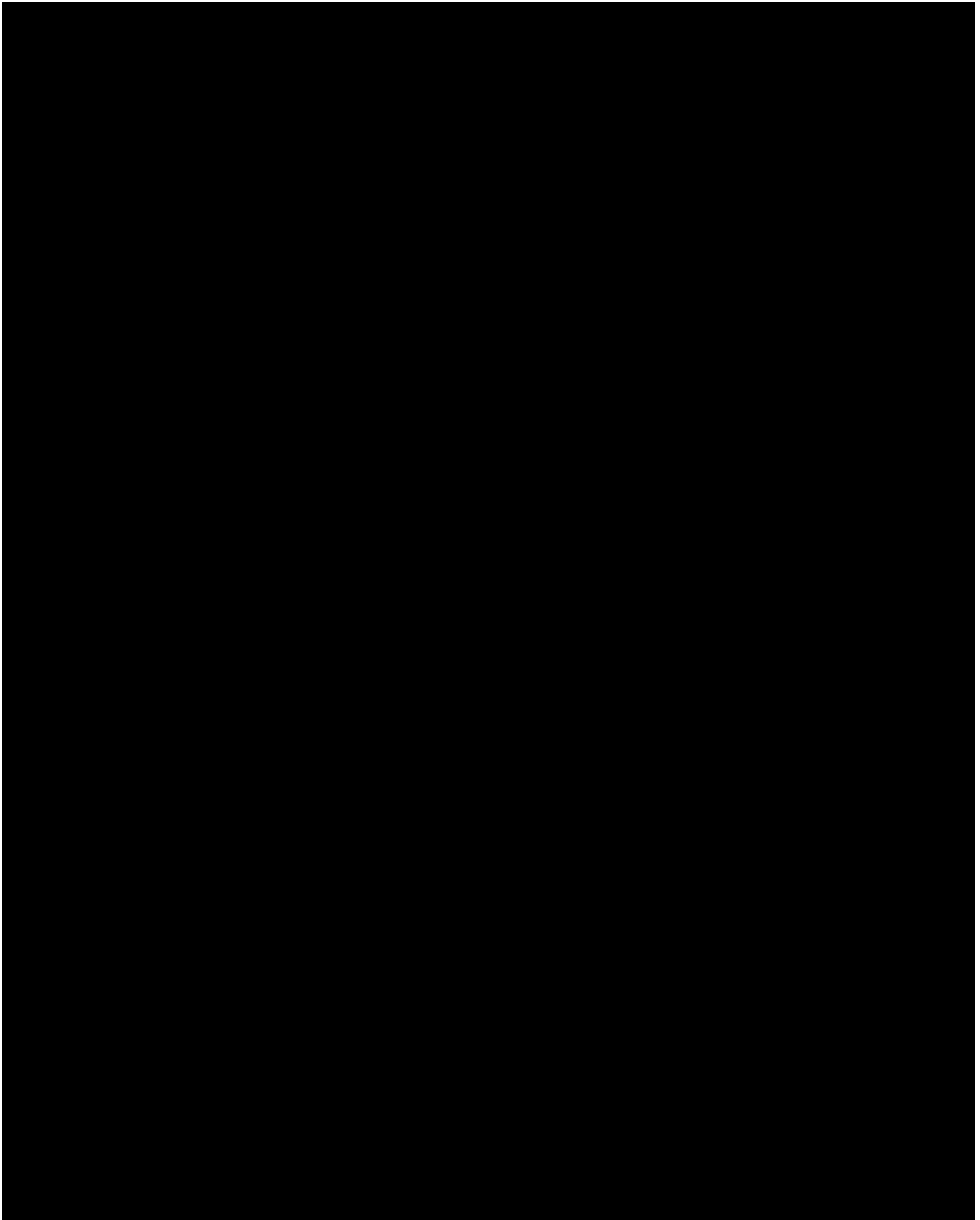


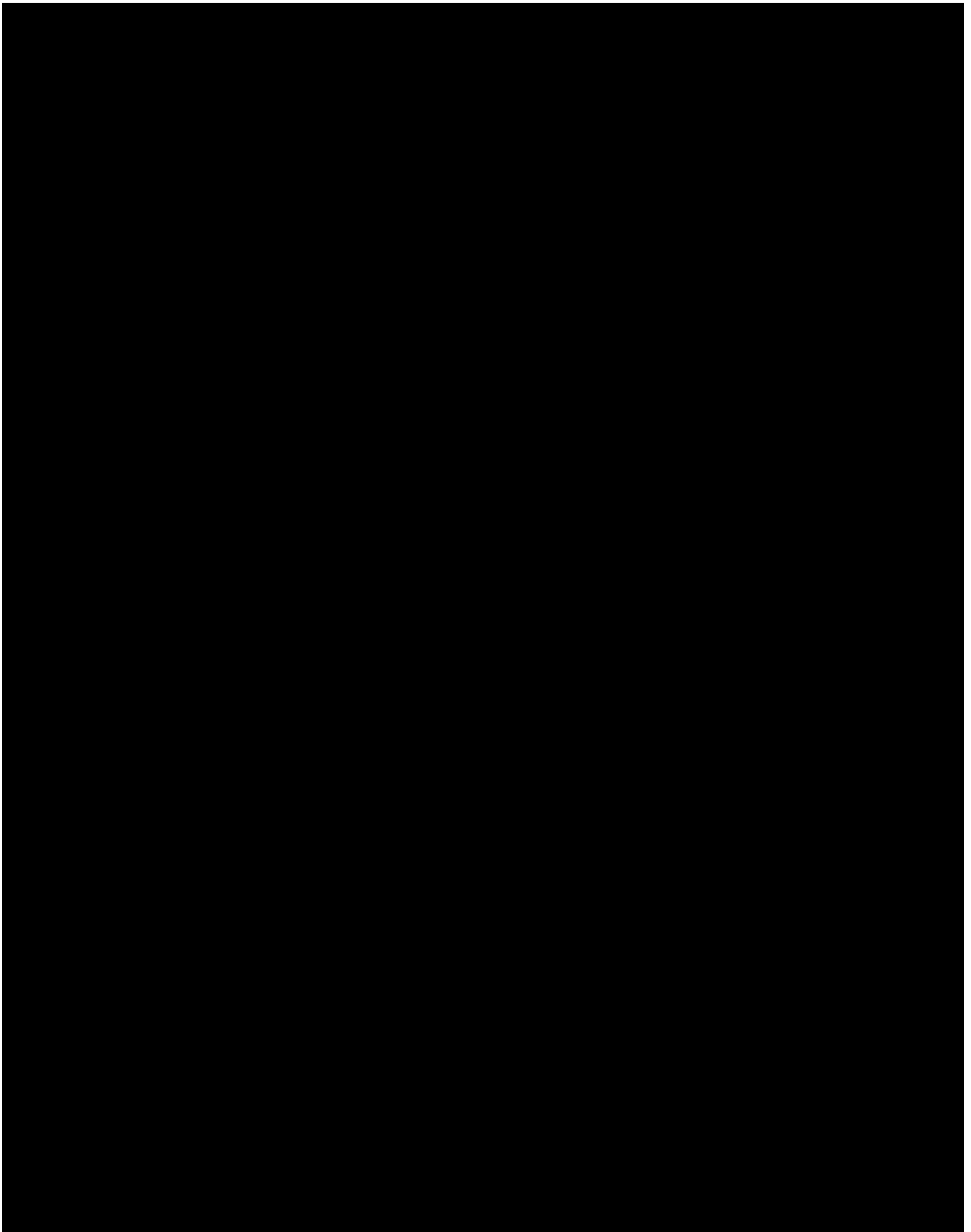


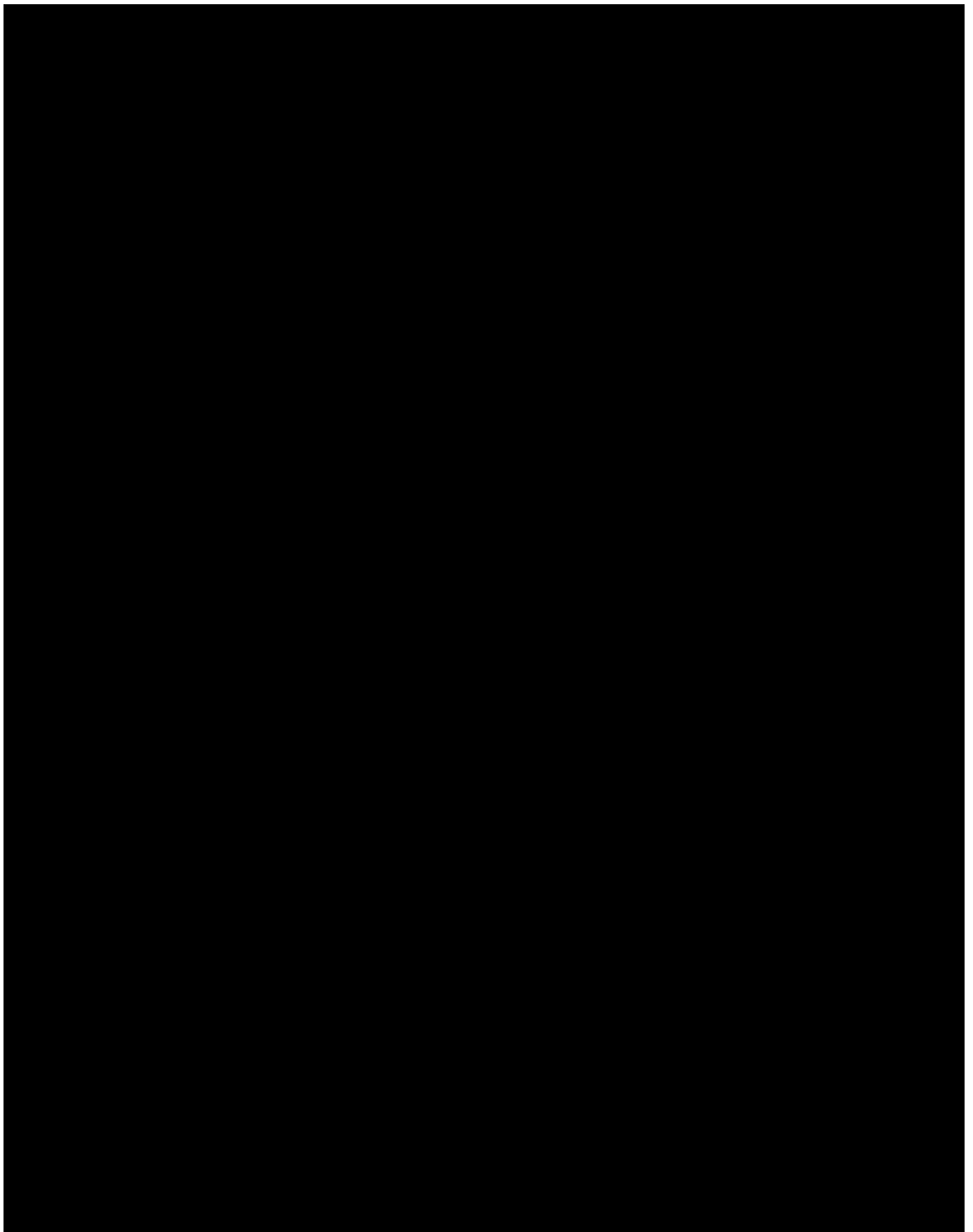


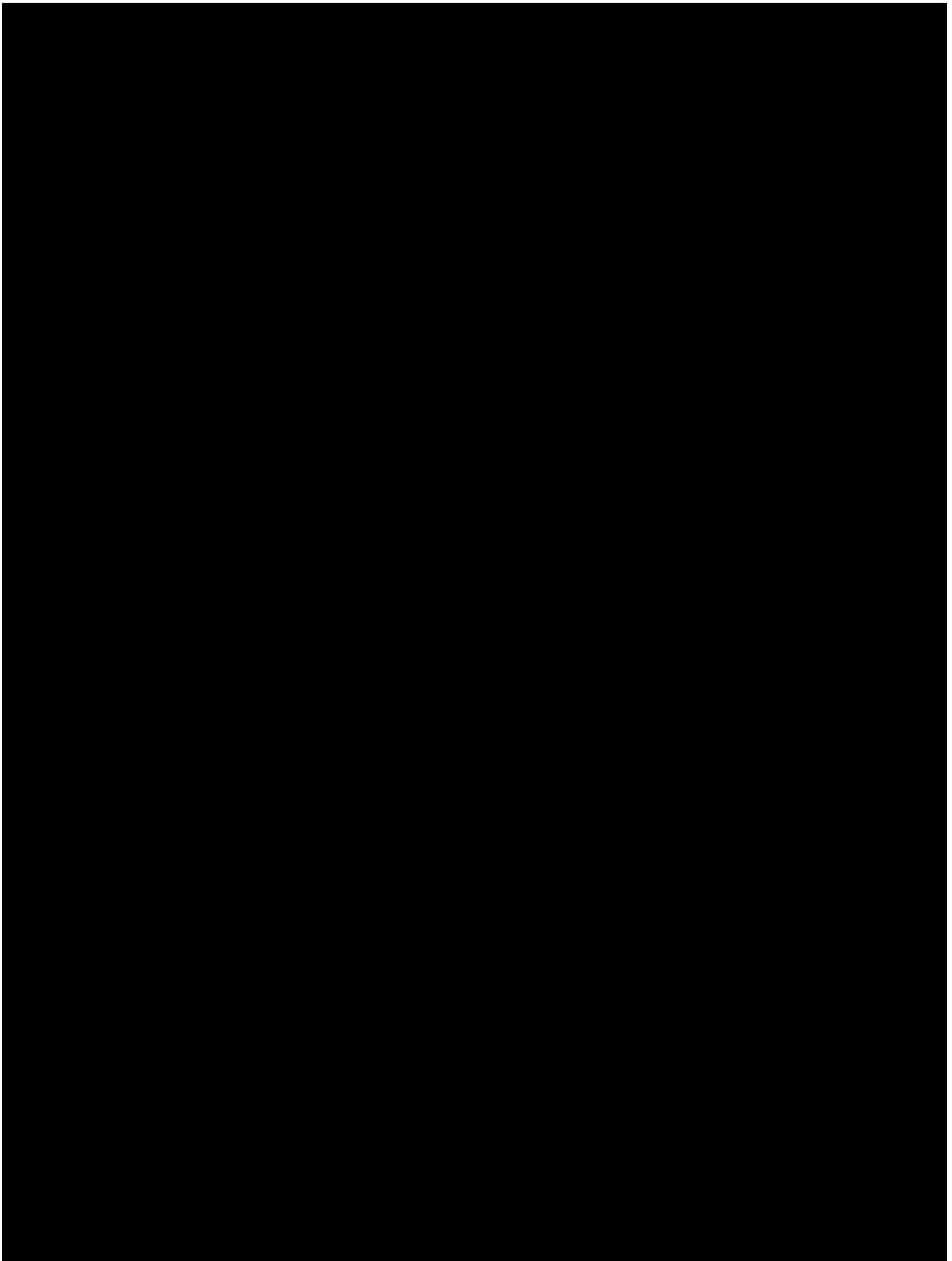


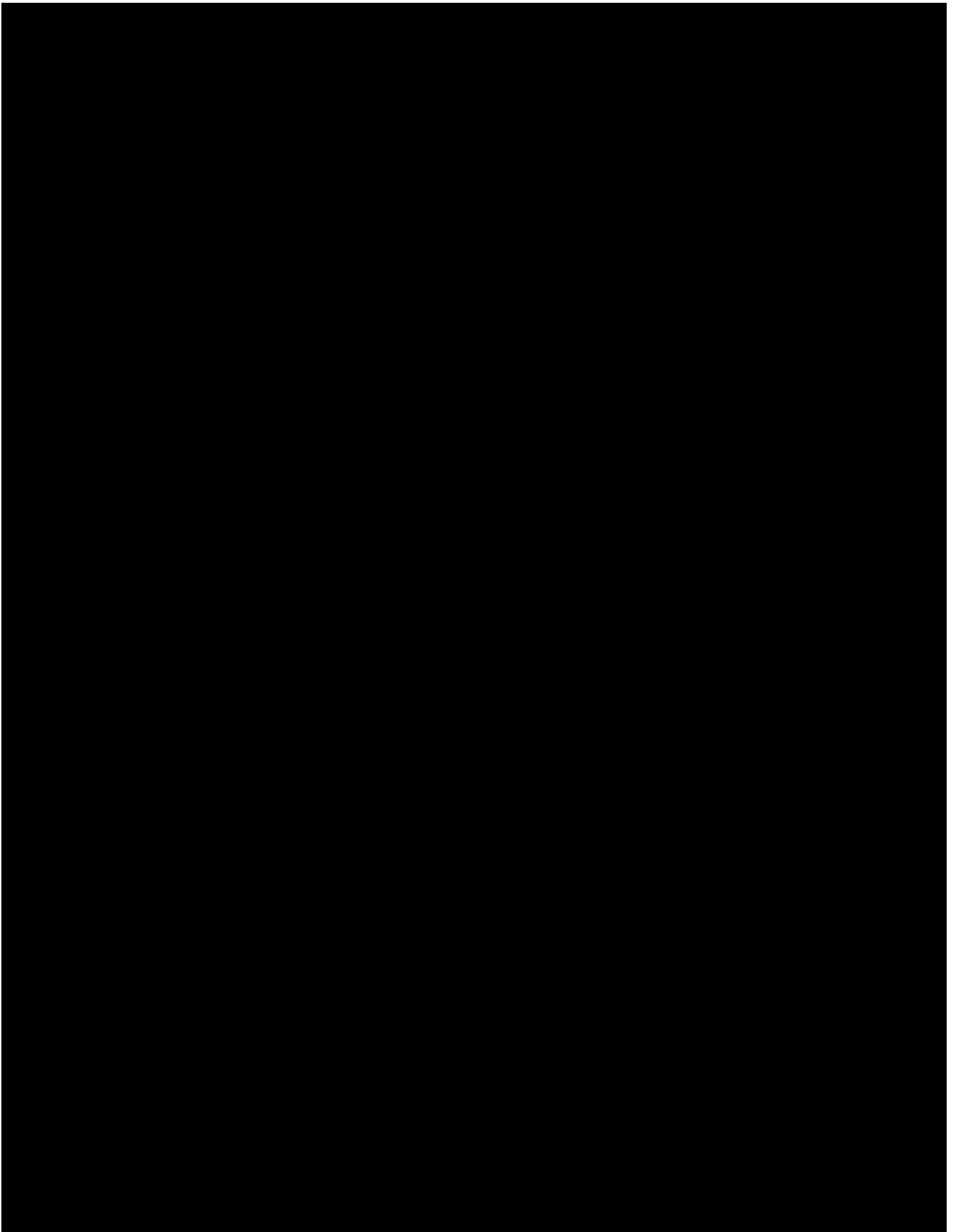












x. Conclusion

183. In summary, it is my understanding that the Waymo Purported Trade Secrets are not novel, and could be independently developed for \$605,000.³³² The following table provides a breakdown of the development costs by alleged trade secret:

Cost to Independently Develop Waymo's Purported Trade Secrets	
	Total Cost
Purported Trade Secret	
No. 2	\$208,920
No. 7	43,600
No. 9	112,160
No. 13 and 14	126,080
No. 25	No Value
No. 90	No Value
No. 96	114,040
No. 111	200
Total	<u>\$605,000</u>

³³² [\$208,920 + \$43,600 + \$112,160 + \$126,080 + \$114,040 + \$200 = \$605,000].

B. Unjust Enrichment from Alleged Use of the Waymo Purported Trade Secrets

184. As of the date of this report, I have seen no evidence of unjust enrichment by Uber from its alleged use of the Waymo Purported Trade Secrets. According to Scott Boehmke, “Fuji is the only in-house LiDAR that is currently under development” by Uber.³³³ Based upon my interviews of Dr. McManamon and Dr. Lebby, I understand that the Waymo Purported Trade Secrets are well known within the industry and provide little, if any, value to Uber.³³⁴ In fact, I understand that the Fuji design does not incorporate many of the teachings of the Waymo Purported Trade Secrets.³³⁵ Additionally, I understand that Uber contends it has independently developed each of the technologies within the Fuji design, which I have seen no evidence produced in this matter that contradicts this position. Therefore, I have seen no evidence that Uber has avoided any costs as a result of its alleged misappropriation of the Waymo Purported Trade Secrets.

185. Furthermore, contrary to Mr. Wagner’s position as discussed above, I have seen no evidence that Uber’s AV development efforts have been accelerated as a result of its alleged misappropriation of the Waymo Purported Trade Secrets. Although the Qi Slide relied upon by Mr. Wagner “attempt[ed]” to determine the present value to Uber “if” it were able to accelerate its AV development by one to two years, as discussed in detail above, results shown in the Qi Slide were speculative, never reviewed or relied on by anyone at Uber, and ultimately proven to be incorrect. Furthermore, neither Waymo, nor its experts, have provided any evidence that Uber accelerated its AV efforts as a result of Uber’s alleged misappropriation of the Waymo Purported Trade Secrets. Therefore, I have seen no evidence that Uber received a head start advantage as a result of its alleged misappropriation of the Waymo Purported Trade Secrets.

186. [REDACTED]

³³³ Deposition of Scott Boehmke, April 17, 2017, pgs. 17 – 18.

³³⁴ Interviews of Dr. McManamon and Dr. Lebby.

³³⁵ Interviews of Dr. McManamon and Dr. Lebby.

[REDACTED]

[REDACTED]

187. [REDACTED]

[REDACTED]

[REDACTED]

³³⁶ WAYMO-UBER-00001354-R – 1371-R, at 363-R.

³³⁷ WAYMO-UBER-00031699 – 31801 at 713 – 717.

³³⁸ WAYMO-UBER-00031699 – 31801, at 714.

188. Additionally, as noted by Waymo, there are many “supply side” and “demand side” risk factors that could affect the success of an AV development program and TaaS business.³⁴¹ Waymo describes these risk factors as follows:³⁴²

- Supply Side Risk:
 - “We get the self-driving technology to work”
 - “We can’t get/develop a vehicle platform;”
 - “We can’t get/develop sensors;”
 - “We can’t solve all the software challenges;” and
 - “We can’t get our overall system reliability high enough.”
 - “We get the cost of the technology down enough to run a sustainable TaaS business”

³³⁹ “Self-driving cars are safer when they talk to each other,” engadget, June 24, 2017, <https://www.engadget.com/2017/06/24/self-driving-cars-mcity-augmented-reality/>.

³⁴⁰ <http://spectrum.ieee.org/cars-that-think/transportation/self-driving/how-driveai-is-mastering-autonomous-driving-with-deep-learning>. Hod Lipson, et al., “Driverless: Intelligent Cars and the Road Ahead,” The MIT Press: Cambridge, 2016, pgs. 197 – 203.

³⁴¹ WAYMO-UBER-00046625 – 632 at 625.

³⁴² WAYMO-UBER-00046625 – 632.

- Demand Side Risk:
 - “We achieve consumer acceptance of self-driving cars;” and
 - “We avoid regulatory prohibition of our self-driving technology.” Google expects “regulatory risks will increase over the next 5 years.”
- Other Risk Factors:
 - “Corporate Funding Risk;”
 - “Secular Risks;”
 - “Macro Risks;” and
 - “Commercialization risks.”

189. [REDACTED]

190. As a result, LiDAR, which the Waymo Purported Trade Secrets are but a small component of, is one small element of the AV development effort. There are many other complex elements and risk factors, unrelated to the development of LiDAR, which may have a significant impact on the development timeline and a company’s ability to successfully implement an AV TaaS business. In fact, when considering the compensation structure for the Ottomotto acquisition, only 20% of

³⁴³ WAYMO-UBER-00042527 – 531 at 529.

³⁴⁴ WAYMO-UBER-00046625 – 632 at 626.

³⁴⁵ WAYMO-UBER-00046625 – 632 at 626.

³⁴⁶ WAYMO-UBER-00046625 – 632 at 627.

³⁴⁷ WAYMO-UBER-00046625 – 632 at 627 – 628.

the “milestone” payments were based upon deliverables associated with the laser.³⁴⁸ The remaining 80% was based upon achievements in other aspects of the AV development effort.³⁴⁹ This further supports the fact that Uber’s AV development effort encompasses much more than the development of a sensor, or the Waymo Purported Trade Secrets.

191. Based on the foregoing, I have seen no evidence that Uber has received a head-start benefit from its alleged misappropriation of the Waymo Purported Trade Secrets, even under an assumption of use. In fact, it is clear that the sensor (e.g., LiDAR) is only a small component of implementing a successful AV TaaS business and a component that does not pose much risk to the AV development timeline as both Plaintiff and Uber are primarily focused on “software challenges.”³⁵⁰ As a result, any alleged benefit would be limited to Uber’s avoided costs which can be measured by the cost to independently develop each of the Waymo Purported Trade Secrets. The cost to independently develop each of the Waymo Purported Trade Secrets would represent the maximum benefit received by Uber under the assumption that Uber misappropriated the Waymo Purported Trade Secrets and benefited from such use.

192. As discussed in detail above, Uber provided the following time and cost estimates to independently develop the accused features of Fuji, which allegedly incorporate the Waymo Purported Trade Secrets:³⁵¹

³⁴⁸ UBER00100344 – 352 at 346 and 349.

³⁴⁹ UBER00100344 – 352 at 346 and 349.

³⁵⁰ WAYMO-UBER-00046625 – 632 at 626; Deposition of Daniel Gruver, August 4, 2017, pgs. 112 – 113.

³⁵¹ Defendant Uber Technologies, Inc. and Ottomotto LLC’s Second Supplemental Responses to Waymo’s First Set of Common Interrogatories (Nos. 1 – 3). See Exhibit 4.

Cost to Independently Develop Waymo's Purported Trade Secrets	
Total Cost	
Purported Trade Secret	
No. 2	\$208,920
No. 7	43,600
No. 9	112,160
No. 13 and 14	126,080
No. 25	No Value
No. 90	No Value
No. 96	114,040
No. 111	200
Total	<u>\$605,000</u>

193. I understand the estimates above assume that the independent contractor would not be provided with information on the current design of the accused features of Fuji.³⁵² Additionally, I understand that Dr. McManamon and Dr. Lebby reviewed these estimates and believe them to be reasonable. Therefore, under an assumption that Uber received a benefit from its alleged misappropriation and use of the Waymo Purported Trade Secrets, I have calculated Uber's unjust enrichment (i.e., based on avoided costs) to be no more than \$605,000. As discussed above, this represents the maximum benefit Uber allegedly received as a result of its alleged misappropriation of the Waymo Purported Trade Secrets. This amount is also conservative as it overstates the damages to Waymo due to the fact that I have not seen any evidence that Uber has been unjustly enriched by its alleged misappropriation of the Waymo Purported Trade Secrets. Additionally, this amount does not take into consideration the actual time expended and costs incurred by Uber from its development of the accused features of Fuji. As noted above, Uber contends that it has independently developed each of the technologies within the Fuji design; and therefore, any alleged unjust enrichment realized by Uber would be net of any actual costs incurred.

³⁵² Defendant Uber Technologies, Inc. and Ottomotto LLC's Second Supplemental Responses to Waymo's First Set of Common Interrogatories (Nos. 1 – 3).

C. Reasonable Royalty for the Alleged Use of the Waymo Purported Trade Secrets

194. For purposes of determining a reasonable royalty for alleged use of trade secrets, it is my understanding that one can look to the guidance given by courts in patent infringement disputes.³⁵³ 35 U.S.C. § 284 provides:

Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer...

195. In trade secret matters, Courts have adopted the guidance set forth in *Georgia-Pacific Corp. v. United States Plywood Corp* (“*Georgia-Pacific*”) to determine the reasonable royalty that would have resulted from a hypothetical negotiation between a willing licensor and willing licensee at the time the trade secrets were allegedly misappropriated.³⁵⁴ In establishing the reasonable royalty in this hypothetical willing licensor/licensee negotiation, courts have established a number of factors that are to be considered, including those established by the *Georgia-Pacific* case. The analysis focuses on the economic and bargaining positions of the hypothetical licensor and hypothetical licensee at the time of the hypothetical negotiation, and the likely outcome of such negotiation given the parties’ respective bargaining positions. An important distinction of the hypothetical negotiation is that parties on both sides of the negotiation would have acknowledged that the alleged trade secrets were, in fact, trade secrets and misappropriated as has been alleged; whereas the licensee in a real-life negotiation may not have made such acknowledgements.

196. While *Georgia-Pacific* enumerates various factors that should be considered in determining reasonable royalties, these factors are not absolute determinants of a reasonable royalty. Rather, the *Georgia-Pacific* Factors are guidelines to evaluating the likely actions of the

³⁵³ *University Computing Company v. Lykes-Youngstown Corporation et al.* 504 F.2d 518, 535, 537 – 539 (5th Cir. 1974); *De Lage Landen Operational Services, LLC v Third Pillar Systems, Inc.* Civil Action No. 09-2439, Memorandum dated May 9, 2011.

³⁵⁴ *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970); and *University Computing Company v. Lykes-Youngstown Corporation et al.* 504 F.2d 518, 535, 537 – 539 (5th Cir. 1974); *De Lage Landen Operational Services, LLC v Third Pillar Systems, Inc.* Civil Action No. 09-2439, Memorandum dated May 9, 2011.

parties in a hypothetical negotiation. Based on the facts and circumstances of the case, the factors are not necessarily given equal weight, and are not exhaustive. Rather, the *Georgia-Pacific* Factors are part of the overall analysis. I have also considered recent Federal Circuit opinions as they relate to my opinion of economic damages in this matter and my opinions comply with the Federal Circuit's mandates.³⁵⁵

i. Hypothetical Negotiation

197. The hypothetical negotiation for a license to the Waymo Purported Trade Secrets is assumed to have occurred on or about the date of first alleged misappropriation. However, I am not aware of any evidence or allegation indicating when the alleged misappropriation of the Waymo Purported Trade Secrets by Uber occurred.³⁵⁶ Given that Waymo alleged that Mr. Levandowski, who is not a Defendant in this litigation, downloaded the 14,000 Waymo documents containing the Waymo Purported Trade Secrets in December 2015, the date of first misappropriation by Uber in this matter could not have occurred prior to December 2015.³⁵⁷ Furthermore, although he provided no basis for the statement, Mr. Wagner asserted that the misappropriation “may have continued through the period until the date of the merger in August 2016.”³⁵⁸ Despite the lack of any evidence indicating the date or dates on which any of the Waymo Purported Trade Secrets were allegedly misappropriated, similar to Mr. Wagner's assumption, I have assumed that the date of first misappropriation, and therefore the hypothetical negotiation, was sometime between December 2015 and August 2016.

ii. Georgia Pacific Factor Analysis

Georgia-Pacific Factor No. 1: *The royalties received by the [trade secret(s) owner] for the licensing of the [trade secret(s)], proving or tending to prove an established royalty.*

³⁵⁵ E.g., *Lucent Technologies v. Gateway*, 580 F.3d 1307 (Fed. Cir. 2009); *Cornell University v. Hewlett-Packard*, 609 F.Supp.2d 279 (N.D.N.Y. 2009); *ResQNet.com v. Lansa*, 594 F.3d 860 (Fed. Cir. 2010); *Uniloc USA v. Microsoft*, 632 F.3d 1292 (Fed. Cir. 2011); *LaserDynamics, Inc. v. Quanta Computer, Inc.*, (Fed. Cir. Aug. 30, 2012); *Ericsson, Inc. v. D-Link Systems, Inc.*, 773 F.3d 1201 (Fed. Cir. 2014); *Commonwealth Sci. & Indus. Research Org. v. Cisco Sys., Inc.*, 809 F.3d 1295 (Fed. Cir. 2015).

³⁵⁶ Interview of Dr. McManamon and Dr. Lebby.

³⁵⁷ Amended Complaint, ¶ 44.

³⁵⁸ The Wagner Report, ¶ 383.

198. *Georgia-Pacific* Factor No. 1 involves consideration of the existence of an established royalty for the Waymo Purported Trade Secrets. As of the issuance of this report, I am not aware of any licenses under which Waymo has granted rights to the Waymo Purported Trade Secrets. As a result, this factor would have a neutral impact on the royalty negotiated between the parties at the hypothetical negotiation.

Georgia-Pacific Factor No. 2: The rates paid by the licensee for the use of other [trade secret(s)] comparable to the [trade secret(s)] at issue.

199. *Georgia-Pacific* Factor No. 2 involves consideration of the existence of any licenses Uber has taken for trade secrets that are comparable to the Waymo Purported Trade Secrets. As of the issuance of this report, I am not aware of any licenses under which Uber has been granted rights to trade secrets or other technology that is comparable to the Waymo Purported Trade Secrets. As a result, this factor would have a neutral impact on the royalty negotiated between the parties at the hypothetical negotiation.

Georgia-Pacific Factor No. 3: The nature and scope of the license, as exclusive or non-exclusive; or as restricted or non-restricted in terms of territory or with respect to whom the manufactured product may be sold.

200. The hypothetical negotiation in this matter would result in Uber obtaining non-exclusive and non-restrictive license to use the Waymo Purported Trade Secrets. My analysis of a reasonable royalty in this matter is based upon the cost and time to independently develop the Waymo Purported Trade Secrets, which would represent the maximum amount Uber would be willing to pay for rights to the Waymo Purported Trade Secrets. As a result, this factor would have a neutral impact on the royalty negotiated between the parties at the hypothetical negotiation.

Georgia-Pacific Factor No. 4: The licensor's established policy and marketing program to maintain its [trade secret(s)] monopoly by not licensing others to use the invention or by gaining licenses under special conditions designed to preserve that monopoly.

201. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

202.

[REDACTED]

[REDACTED]

203. Waymo and Uber would have been considered potential competitors at the time of the hypothetical negotiation. Specifically, Uber identified various competitors in the AV industry, including Google, Tesla, and Apple.³⁶² Furthermore, Waymo viewed the following companies as potential competitors as of 2016:³⁶³

³⁵⁹ WAYMO-UBER-00031464 – 552 at 548.

³⁶⁰ Deposition of Gerard Dwyer, August 9, 2017, pg. 213.

³⁶¹ Deposition of Gerard Dwyer, August 9, 2017, pgs. 213 – 214.

³⁶² UBER00068983.

³⁶³ WAYMO-UBER-00001354 – 1412, at 1404 – 1405.



204. Additionally, in May 2017, Waymo announced that it would partner with Lyft, which is a competitor of Uber in the ridesharing industry.³⁶⁴ As a result, Waymo and Uber would have been considered potential competitors at the time of the hypothetical negotiation. As a result, this factor would have an upward impact on the royalty negotiated between the parties at the hypothetical negotiation.

Georgia-Pacific Factor No. 6: The effect of selling the [trade secret(s)] specialty in promoting sales of other products of the licensee; the existing value of the invention to the licensor as a generator of sales of its [non-trade secret] items; and the extent of such derivative or convoyed sales.

205. In general, convoyed sales involve sales of related products, which flow or would be expected to flow to the licensee from the right to manufacture, use or sell products utilizing the trade secret(s). As of the date of issuance of this report, I have seen no evidence that the Waymo Purported Trade Secrets provide the basis of demand for the Fuji LiDAR System. Similarly, I have seen no evidence of any residual sales that Uber would be able to realize as a result of incorporating the Waymo Purported Trade Secrets into a LiDAR system. As a result, this factor would have a neutral impact on a negotiated royalty between the parties.

Georgia-Pacific Factor No. 7: The duration of the [trade secret(s)] and the term of the license.

206. Trade secrets have no legal limit on their duration. As a result, the term of the license resulting from the hypothetical negotiation would have been for as long as the Waymo Purported Trade Secrets remained confidential and provided a competitive advantage to Waymo. However, Uber could have independently developed the Waymo Purported Trade Secrets in a short period of time. Moreover, once Waymo, and other companies, introduce an AV on the road, the LiDAR systems may be more accessible and subject to reverse engineering. As a result, this factor would have a neutral impact on the royalty negotiated between the parties at the hypothetical negotiation.

³⁶⁴ <https://www.nytimes.com/2017/05/14/technology/lyft-waymo-self-driving-cars.html?mcubz=1>.

Georgia-Pacific Factor No. 8: *The established profitability of the product made under the [trade secret(s)]; its commercial success; and its current popularity.*

207. In order to evaluate this factor, it is important to review the respective expectations of the parties at the time of the hypothetical negotiation regarding potential revenues and profits realized from implementing a successful AV TaaS business. As discussed throughout this report, I understand that any alleged use of the Waymo Purported Trade Secrets would have had little, if any, impact on future revenues and profits of Uber. Moreover, none of the evidence cited by Wagner has to do with the “established profitability of the product,” as required for consideration under *Georgia-Pacific* factor number 8.

208. Although the Qi Slide relied upon by Mr. Wagner “attempt[ed]” to determine the present value to Uber “if” it were able to accelerate its AV development by one to two years, as discussed in detail above, results shown in the Qi Slide do not reflect the “established profitability of the product,” which doesn’t exist. Further, the results were speculative, never reviewed or relied on by anyone at Uber, and ultimately proven to be incorrect as the Ottomotto acquisition has not accelerated commercialization of Uber’s AV technology. Ms. Qi stated multiple times in her testimony that her incremental profitability projections were not readily received by her supervisors.³⁶⁵ In her testimony, Ms. Qi stated that “both John and Brian did not like this, and I remember John saying, ‘This slide needs work’” and “[t]hey thought my analysis on the cheaper data collection was off.”³⁶⁶ As a result, Ms. Qi testified that her incremental profitability projections (i.e., the Qi Slide) were “her own assessment and ultimately was not used in any forum.”³⁶⁷

209. Additionally, due to the high risks and uncertainties involved in the AV market, assessing future profitability is unpredictable.³⁶⁸ At the time of the hypothetical negotiation, Uber, and Waymo, faced, and still faces, numerous obstacles, including technical and regulatory hurdles, to

³⁶⁵ Deposition of Ningjun Qi, June 22, 2017, pgs. 212 and 215 – 216; Deposition of Ningjun Qi, August 10, 2017, pgs. 412 and 417.

³⁶⁶ Deposition of Ningjun Qi, June 22, 2017, pg. 215.

³⁶⁷ Deposition of Ningjun Qi, June 22, 2017, pg. 223.

³⁶⁸ Strategy&, “Connected car report 2016: Opportunities, risk, and turmoil on the road to autonomous vehicles,” pg. 22.

its contemplated launch of an AV TaaS business that a license to the Waymo Purported Trade Secrets alone would not remove. These hurdles make Uber's internal forecasts of profit associated with that service extremely speculative. Several substantial technical hurdles stand between current AV technology and commercialization of AV TaaS. First, profitability in the AV TaaS model is tied to the ability to remove human drivers (labor costs being [70%] of total costs). Removing human drivers depends on AV technology being sufficiently reliable. Second, LiDAR cannot currently function in adverse weather conditions such as rain or snow.³⁶⁹ Therefore, LiDAR-dependent AVs cannot sustain continuous operations in areas where precipitation is common. Given the climate in the U.S., this significantly limits the potential locations in which a LiDAR-dependent AV car design can be brought to market.

210. In addition to the technical hurdles encumbering AV commercialization, many policy and regulatory issues affect the timing and viability of an AV TaaS business.³⁷⁰ One of the major hurdles involves many current legal regimes requiring human driver fail safes for AVs to access public roadways. Uber has discussed the fact that so-called "safety drivers" may have to be in AV cars for some time.³⁷¹ For example, Uber has not even ventured to make plans to roll-out AV TaaS because any planning process would be stymied by uncertainties as to whether, or in what form, the regulatory environment might one day permit the AV technology to be implemented.³⁷²

211. Waymo also recognized the hurdles posed by regulation. In its "Plan of Record Strategy," Waymo enumerated the risks it faced in the AV space, one of which was "regulatory hurdles block[ing] [its] TaaS service from operating."³⁷³ [REDACTED]

[REDACTED] Charlie Johnson, a Business Strategy and Operations Analyst at Waymo, recognized that "some regulations might impede [Waymo's]

³⁶⁹ <http://spectrum.ieee.org/cars-that-think/transportation/self-driving/how-driveai-is-mastering-autonomous-driving-with-deep-learning>.

³⁷⁰ For example, WAYMO-UBER00032319 – 383, at 335 – 342; WAYMO-UBER-00031805 – 817, at 810.

³⁷¹ Deposition of Gautam Gupta, August 18, 2017, pg. 126.

³⁷² Deposition of Gautam Gupta, August 18, 2017, pgs. 126 – 128.

³⁷³ WAYMO-UBER-00031805 – 817, at 811.

³⁷⁴ WAYMO-UBER-00031805 – 817, at 811.

ability to serve customers, that would be a challenge [Waymo] would have to respond to.” Without removing drivers from cars, the cost-savings of AV versus non-AV may not even exist.

212. As discussed above, Mr. Wagner relied on a Waymo Profit and Loss statement (P&L)³⁷⁵ as allegedly supporting his argument that “[t]he potential profit opportunity to Waymo related to autonomous vehicles is dramatic.”³⁷⁶ However, Waymo’s forecasts, even if credible, are irrelevant to *Georgia-Pacific* factor 8, which requires consideration only of the “*established* profitability of the product.” Furthermore, the projections in the P&L statement, extending over 10 years into the future for an industry with no historical track record of commercialization, are entirely speculative.

213. In fact, Waymo employees responsible for either preparing the Waymo P&L or for providing critical inputs to it confirmed that the projections were speculative. For example, Mr. Su, former Finance Manager for Waymo, testified that forecasts are sometimes “best guesses” and “...the goal isn't necessarily to be accurate...[t]he goal is to present a potential outcome”.³⁷⁷ Furthermore, the P&L statements were missing variables, like the cost of “maintenance for the SDS modules,” which Mr. Su testified he did not know if it would “be significant” because he needed to “see some numbers on what the maintenance cost will be,” that could affect overall profitability of the projections.³⁷⁸ Mr. Willis, Director of Supply Chain Operations for Waymo, testified [REDACTED]

[REDACTED] Additionally, according to Mr. Su, projecting so far in the future increases the speculative nature of the projections and that they “don't think there's anyone that would suggest they're confident of anything occurring 10 years from now.”³⁸⁰

214. As a result, this factor would have a downward impact on the royalty negotiated between the parties at the hypothetical negotiation.

³⁷⁵ The Wagner Report at ¶340 (citing WAYMO-UBER-00032541).

³⁷⁶ The Wagner Report at ¶338.

³⁷⁷ Deposition of Ming Su, August 23, 2017, pgs. 118, 211 – 212.

³⁷⁸ Deposition of Ming Su, August 23, 2017, pgs. 271:8-276:24; Ex. 1877 (Waymo-Uber-40138-139).

³⁷⁹ Deposition of Tim Willis, August 18, 2017, pgs. 204, 211, 220, 230, 336, and 346.

³⁸⁰ Deposition of Ming Su, August 23, 2017, pgs. 178 – 179, 216, 251.

Georgia-Pacific Factor No. 9: *The utility and advantage of the [trade secret(s)] property over the old modes or devices, if any, that had been used for working out similar results.*

Georgia-Pacific Factor No. 10: *The nature of the [trade secret(s)]; the character of the commercial embodiment of it as owned and produced by the licensor; and the benefits to those who have used the [trade secret(s)].*

215. *Georgia-Pacific* Factors Nos. 9 and 10 are considered together because of their similar nature. *Georgia-Pacific* Factors Nos. 9 and 10 both relate to the advantages conveyed due to use of the trade secrets and the related benefits enjoyed by the user of the trade secret(s) over alternative means of achieving similar results. As discussed above, according to Dr. McManamon and Dr. Lebby, the Waymo Purported Trade Secrets are not novel and provided very little, if any, benefit to Uber.³⁸¹ In fact, Google itself placed limited, if any, value on the Waymo Purported Trade Secrets. According to Google, “[a]t least historically, high-value has been algorithms and software. The hardware (at all levels) was a second class citizen.”³⁸² The files allegedly downloaded by Mr. Levandowski, which included the Waymo Purported Trade Secrets, were “all electronic designs – schematics and PCB layouts, and the component library for their creation. It was considered low value enough that we had even considered hosting it off of Google infrastructure.”³⁸³

216. Furthermore, the development and manufacturing of LiDAR systems is dynamic and rapidly evolving.³⁸⁴ As of the issuance of this report, many new and established companies are pursuing the next generation of LiDAR systems, which will lead to cheaper, smaller, and more reliable systems being announced and introduced over time.³⁸⁵ I understand that these newer systems are different from conventional LiDARs with rotary joints and spinning mechanical

³⁸¹ Interview of Dr. McManamon and Dr. Lebby.

³⁸² WAYMO-UBER-00084484.

³⁸³ WAYMO-UBER-00084484.

³⁸⁴ Interview of Dr. McManamon and Dr. Lebby.

³⁸⁵ For example, Velodyne announced two new LiDAR systems in the second half of 2016.

http://velodynelidar.com/docs/news/Velodyne%20LiDAR%20Announces%20Puck%20Hi-Res%20LiDAR%20Sensor,%20Offering%20Higher%20Resolution%20to%20Identify%20Objects%20at%20Greater%20Distances%20_%20Business%20Wire.pdf; http://velodynelidar.com/docs/news/Velodyne%20LiDAR%20Announces%20New%20Velarray%20LiDAR%20Sensor%20_%20Business%20Wire.pdf.

components, similar to what Waymo has developed.³⁸⁶ For example, solid-state, micro-electro-mechanical system steered (“MEMS-steered”), or coherent optical systems are recognized as viable alternatives to mechanically rotating LiDAR technology.³⁸⁷ Furthermore, I understand that various next-generation solid-state LiDAR systems have already been developed by several companies, (e.g., Velodyne, Quanergy, Valeo, Leddar).³⁸⁸ As of April 2017, the latest version of solid-state LiDAR being developed by Luminar promised to “provide 50 times more resolution and 10 times the range of current LiDAR systems.”³⁸⁹

217. I further understand that other companies such as Infineon, STMicroelectronics, and AnalogDevices have been investing in solid-state and MEMS-steered LiDAR technology and entering the AV industry.³⁹⁰ As of the date of issuance of this report, more advanced technologies were in the works, such as Oryx’s “coherent optical radar” which combines the benefits of LiDAR and radar in a single device.³⁹¹ Additionally, as noted above, there are also AV systems that do not use LiDAR at all, including Tesla’s current system.

218. As noted above, there are many other complex elements and risk factors, unrelated to the development of a LiDAR, which may have a significant impact on the development timeline and a company’s ability to successfully implement an AV TaaS business. I have seen no evidence that Uber was able to accelerate its time to market involving commercialization of AV technology as a result of its alleged misappropriation of the Waymo Purported Trade Secrets. Therefore, the little, if any, value provided by the Waymo Purported Trade Secrets would limit the amount that

³⁸⁶ The Hesselink Report, pgs. 51 – 52; Deposition of James Haslim, August 9, 2017, pgs. 482 – 483.

³⁸⁷ <http://spectrum.ieee.org/cars-that-think/transportation/sensors/can-israeli-startup-oryx-oust-lidar-from-selfdriving-cars>; <https://www.economist.com/news/science-and-technology/21712103-new-chips-will-cut-cost-laser-scanning-breakthrough-miniaturising>.

³⁸⁸ <https://spectrum.ieee.org/cars-that-think/transportation/sensors/velodyne-announces-a-solidstate-lidar>; <http://quanergy.com/s3/>; <http://leddartech.com/leddar-technology-enables-new-mass-market-lidar-offering-automotive-applications/>; <http://leddartech.com/automotive/>.

³⁸⁹ WAYMO-UBER-00025181 – 183, at 181.

³⁹⁰ <https://www.infineon.com/cms/en/about-infineon/press/press-releases/2016/INFATV201610-002.html>; and http://www.st.com/content/st_com/en/about/media-center/press-item.html/t3876.html.

³⁹¹ <http://oryxvision.com/news/oryx-vision-raises-50m-build-groundbreaking-coherent-lidar-autonomous-vehicles/>.

Uber would be willing to pay for rights to these trade secrets. As a result, this factor would have a downward impact on the royalty negotiated between the parties at the hypothetical negotiation.

Georgia-Pacific Factor No. 11: *The extent to which the infringer has made use of the invention; and any evidence probative of the value of that use.*

219. This factor takes into account the extent of use, and value provided from such use, of the Waymo Purported Trade Secrets by Uber. As noted above, I understand that the Fuji design does not incorporate many of the teachings of the Waymo Purported Trade Secrets.³⁹² Furthermore, based upon my interviews of Dr. McManamon and Dr. Lebby, I understand that the Waymo Purported Trade Secrets are well known within the AV industry, are not novel, and provide little, if any, value to Uber.³⁹³ In fact, according to Google, “[t]he hardware (at all levels) was a second class citizen”³⁹⁴ and the files allegedly downloaded by Mr. Levandowski, which included the Waymo Purported Trade Secrets, were “...considered low value.”³⁹⁵

220. [REDACTED]

³⁹² Interviews of Dr. McManamon and Dr. Lebby.

³⁹³ Interviews of Dr. McManamon and Dr. Lebby.

³⁹⁴ WAYMO-UBER-00084484.

³⁹⁵ WAYMO-UBER-00084484.

³⁹⁶ [REDACTED]

[REDACTED]

221. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

³⁹⁷ WAYMO-UBER-00046625 – 632 at 625.

³⁹⁸ Krawiec, RJ, et al., *Governing the Future of Mobility*, Deloitte, 2017, pgs. 2 and 9 (citations omitted).

³⁹⁹ WAYMO-UBER-00046625 – 632 at 630.

⁴⁰⁰ WAYMO-UBER-00046625 – 632 at 632.

[REDACTED]

222. Based on the foregoing, Uber would have been reluctant to pay a significant royalty for rights to purported trade secrets that provided little, if any, value and/or benefit to its ability to implement an AV TaaS business. Additionally, the parties would have also taken into consideration the substantial risks and overall uncertainty surrounding the AV TaaS business, which are unrelated to the successful development of the LiDAR system. Therefore, this factor would have a downward impact on the royalty negotiated between the parties.

Georgia-Pacific Factor No. 12: *The portion of the profit or selling price that may be customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions.*

223. In considering *Georgia-Pacific* Factor No. 12, I conducted research regarding royalty rates for potentially comparable technology in the public domain. As a result, I obtained information from RoyaltySource,⁴⁰¹ an online database and provider of publicly-available information regarding licenses of intellectual property, based on keywords and descriptions of comparable technology provided to me by Dr. McManamon and Dr. Lebby. However, none of the agreements identified through this search were economically comparable to a hypothetical negotiation between Waymo and Uber. As a result, this factor would have a neutral impact on the royalty negotiated between the parties at the hypothetical negotiation.

Georgia-Pacific Factor No. 13: *The portion of the realizable profit that should be credited to the invention as distinguished from [non-trade secret] elements, the manufacturing process, business risks, or significant features or improvements added by the [misappropriator].*

224. This factor takes into account the relative contribution of the trade secret feature(s) to the success of the accused product(s). As of the issuance of this report, I have seen no evidence that the Waymo Purported Trade Secrets are the basis of demand for the LiDAR system. As discussed above, based on my interviews of Dr. McManamon and Dr. Lebby, I understand the Waymo Purported Trade Secrets are not novel and provide very little, if any, benefit to Uber. Furthermore,

⁴⁰¹ <http://www.royaltysource.com>.

I understand the Waymo Purported Trade Secrets could have been independently developed with minimal time and cost.⁴⁰²

225. As a result, my analysis of a reasonable royalty in this matter is based on the estimated time and cost to independently develop the accused features, which allegedly incorporate the Waymo Purported Trade Secrets, of the Fuji LiDAR system.⁴⁰³ As such, my analysis inherently apportions out the value of the Waymo Purported Trade Secrets from the value of the LiDAR system and the AV system as a whole. As a result, this factor would have a neutral impact on the royalty negotiated between the parties at the hypothetical negotiation.

Georgia-Pacific Factor No. 14: The opinion and testimony of qualified experts.

226. This factor includes by reference all of the opinions stated in this report, including the expertise of Dr. Lebby and Dr. McManamon on technical matters.

Georgia-Pacific Factor No. 15: The amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement; that is, that amount which a prudent licensee – who desires, as a business proposition, to obtain a license to manufacture and sell a particular article embodying the patented invention – would have been willing to pay as a royalty and yet be able to make a reasonable profit and which amount would have been acceptable by a prudent patentee who was willing to grant a license.

227. This factor represents the combination of all the facts considered in my report and my assessment of the previous factors in determining the amount of a reasonable royalty. Waymo would have entered into a hypothetical negotiation with Uber for a non-exclusive and non-restrictive license for rights to use the Waymo Purported Trade Secrets. Based on the documents, deposition testimony, and other information I have reviewed and considered in this matter, the parties would have considered the following points at the time of the hypothetical negotiation.

⁴⁰² Interview of Dr. McManamon; Interview of Dr. Lebby; Interview of Mr. Haslim.

⁴⁰³ Defendants Uber Technologies, Inc. and Ottomotto LLC's Fifth Supplemental Responses to Waymo's First Set of Common Interrogatories (Nos. 1 – 3), August 24, 2017.

- The Waymo Purported Trade Secrets are assumed to be trade secrets and to have been misappropriated by Uber;
- There was no established royalty for a license to the Waymo Purported Trade Secrets;
- The Waymo Purported Trade Secrets are well known within the industry and are not novel;
- The Waymo Purported Trade Secrets provide little, if any, value to Uber;
- Waymo recognized the “low value” of the Waymo Purported Trade Secrets;
- [REDACTED]
- Waymo and Uber would have been considered potential competitors at the time of the hypothetical negotiation. However, Waymo did not have a functional TaaS business as of the date of the hypothetical negotiation;
- The Fuji LiDAR, which allegedly incorporates the Waymo Purported Trade Secrets, is only a small component of Uber’s overall AV development effort;
- Waymo and Uber recognized the significant risks and uncertainties involved in implementing an AV TaaS business, which made assessing potential future success and profitability unpredictable; and
- There were alternative LiDAR designs available to Uber at the time of the hypothetical negotiation. In fact, Uber was utilizing LiDAR systems from third-parties at the time of the hypothetical negotiation.

228. Waymo and Uber would have also considered the other factors and considerations described above and throughout this report at the time of the hypothetical negotiation in determining a reasonable royalty.

iii. Royalty Conclusion

229. Upon review of all the evidence and information in this case, it is my opinion that Waymo and Uber would have agreed to structure the royalty as a lump-sum payment. In concluding the amount of the lump sum royalty which would result from the hypothetical negotiation, it is my opinion that Waymo and Uber would have agreed to a lump-sum royalty of no more than \$605,000,

⁴⁰⁴ Deposition of Gerard Dwyer, August 9, 2017, pgs. 213 – 214.

based on the cost to independently develop the Waymo Purported Trade Secrets. As noted above, the cost to independently develop the Waymo Purported Trade Secrets can be broken down by trade secret as follows:⁴⁰⁵

Cost to Independently Develop Waymo's Purported Trade Secrets	
Total Cost	
Purported Trade Secret	
No. 2	\$208,920
No. 7	43,600
No. 9	112,160
No. 13 and 14	126,080
No. 25	No Value
No. 90	No Value
No. 96	114,040
No. 111	200
Total	<u>\$605,000</u>

230. I understand that Dr. McManamon and Dr. Lebbey reviewed the estimated costs and time to develop these purported trade secrets and believe them to be reasonable. Waymo would have understood that Uber would never have agreed to pay a royalty that was any more than the cost to independently develop the Waymo Purported Trade Secrets.

231. The reasonableness of these estimates is further supported by a monthly “Headcount Spend” identified in an August 2017 Uber presentation.⁴⁰⁶ As discussed in Exhibit 4, the time and cost to develop the Waymo Purported Trade Secrets of \$605,000 is based on estimated hardware costs and “salary time” applied at the following rates: \$200 per hour for Electrical Engineers, Engineers, Mechanical Engineers, and \$60 per hour for Technicians.⁴⁰⁷ Based on my review of

⁴⁰⁵ See Exhibit 4.

⁴⁰⁶ UBER00231730 – 739.

⁴⁰⁷ Interview of Mr. Chouta.

the August 2017 Uber presentation, it appears that the hourly rates provided to me by Mr. Chouta are reasonable, if not overstated. As of June 2017, the Hardware department, which would incorporate more than just the Fuji LiDAR design, had a headcount of 108 people and a monthly spend of approximately \$1.9 million.⁴⁰⁸ This would result in an average spend of \$100.48 per hour for its employees in the Hardware department.⁴⁰⁹ Therefore, in addition to the reasons identified above, the estimated cost to independently develop the Waymo Purported Trade Secrets of \$605,000 appears to be conservative (i.e., overstated).

VIII. RESERVATION OF RIGHTS

232. This report reflects my analysis and opinions to date. It is my understanding that discovery in this matter is ongoing, including depositions of fact witnesses. As additional data, information, or testimony become available to me, I intend to consider this information. I may modify or update my opinions to include additional information received after the date of this report. Furthermore, I may prepare demonstrative graphs and/or charts to assist in the presentation of my opinions at deposition or at hearing, if I am requested to testify.

⁴⁰⁸ UBER00231730 – 739, at 732.

⁴⁰⁹ [\$86,814.59 per day ÷ 108 employees = \$803.84 per day]; [\$803.84 per day ÷ 8 hours = \$100.48 per hour].



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Education M.B.A. Wharton Graduate School, University of Pennsylvania
 B.A. University of Pennsylvania, Phi Beta Kappa
 Summa Cum Laude

Certifications Certified Public Accountant, State of Texas 1981
 Certified Licensing Professional, 2008
 Certified Fraud Examiner, 1991
 Certified in Financial Forensics, AICPA 2009

Professional Affiliations American Institute of Certified Public Accountants
 Texas Society of Certified Public Accountants
 Houston Chapter, Texas Society of Certified Public Accountants
 Chairperson, U.S. Licensing Executive Society International Committee
 Intellectual Property Organization, Patent Misuse Committee
 United Nations/Economic Commission for Europe, Group of Experts on Enforcing Intellectual Property Rights for the Commonwealth of Independent States
 Editorial Board of the Journal of Commercial Biotechnology, London, England
 Associate Editor of the Journal of Biotechnology Applications
 Editorial Board of Managing Intellectual Property
 Lecturer on trademarks/trade secrets/Lanham Act at University of Houston Law School 2001-Present
 Lecturer on financial reporting, cost accounting, and management accounting topics

Professional History 03/01/17-Present Managing Director, OverMont, a Division of Whitley Penn LLP

**Professional
History cont'd**

9/1/08–03/01/17 Managing Director, OverMont Consulting LLC

9/1/08–3/10 Senior Consultant, Charles River Associates

2004–08/31/08 Vice President, Charles River Associates

1999–2004 Managing Director, InteCap, Inc.

1998–1999 Partner, PricewaterhouseCoopers LLP
Global Director/Partner—Intellectual Property Services for the Financial
Advisory Services Practice

1983–1998 Price Waterhouse LLP
U.S./European Director—Intellectual Property Services for the Corporate
Finance Reorganization and Disputes Practice, 1996–1998
Partner, 1989-1998
Senior Manager, 1985–1989
Manager, 1983–1985; Senior Consultant, 1983

1981–1983 CFO and Treasurer, Advanced Energy Supply Company

1980–1981 Arthur Andersen

1978–1979 Ernst & Whinney

**Range of Industry
Experience****Industry Experience Includes:**

- Aeronautic/Aviation/Avionics
- Agriculture
- Automotive
- Biotechnology
- Broadcasting/Media
- Chemicals
- Commercial Real Estate
- Computer Software & Hardware
- Construction
- Consumer Products
- Electronic Commerce
- Energy
- Entertainment, Gaming, & Hospitality
- Film Production/Distribution
- Financial Institutions
- Consumer & Commercial Financial Institutions
- Health and Beauty Aids
- Health Care and Life Sciences
- High Technology
- Insurance
- Investments
- Leasing
- Manufacturing
- Medical Devices/Procedures
- Mining/Extraction
- Oil & Gas
- Pharmaceuticals
- Publishing
- Restaurant/Food Distribution
- Retailing & Wholesaling
- Software
- Telecommunications
- Transportation & Distribution
- Veterinary/Livestock
- Vitamins, Mineral, Health Supplements

Examples of Business Experience

Intellectual Property

- Extensive experience in a variety of intellectual property issues involving patents, trademarks, trade dress, copyrights, trade secrets and know how. Have worked on assignments relating to strategic management, licensing, litigation and competition issues related to IP matters.
- Testified in federal and state court, ITC, AAA, IAA and ICC matters involving a broad range of IP topics including industry structure, licensing and practices. Also testified regarding damages related issues including lost profits, reasonable royalties, price erosion, competition and related topics. Subject matter has involved patents, trademarks and trade dress, copyrights and trade secrets. Testified regarding competition issues and the impact of the form and structure of patent license terms on technology innovation. Testified regarding product and geographical market definition related to patent and antitrust damages. Served as court appointed expert, examiner and consultant in federal and state court proceedings.
- Conducted extensive studies in strategic management of intellectual property for corporate clients including multinational, international, joint ventures, and start-up and development stage companies. Work performed included research and analysis regarding industry dynamics and IP management practices and evaluation of corporate IP strategies relating to invention/innovation cycles, license-in/license-out policies, buy/sell strategies, portfolio optimization, license enforcement and overall offensive and defensive IP strategies.
- Negotiated licenses and assisted clients in license negotiations and technology transfer projects. Determined appropriate compensation package, including royalty payments, based on the proposed structure and terms of the license agreement for the subject technology. Performed empirical studies associated with the subject technology's financial performance, industry practices and investment strategies. Reviewed and analyzed the terms and conditions of several thousand license agreements. Performed royalty compliance audits.
- Conducted auction process for sale of IP portfolios. Work included valuation of IP assets, identification of potential acquirers, preparation of IP offering circular and managing the auction process to completion. Involved in projects related to securitization of IP rights and related income streams.
- Analyzed and studied various industry standard setting bodies, practices and related license issues affecting standards adoption and innovation. Analyzed technology adoption and commercialization trends in the context of standard setting and patent pools.
- Industry focus has included, among others, energy, software and operating systems, semiconductors, life and health sciences (pharmaceutical, biotechnology, medical devices/procedures), semiconductors, high-end and consumer electronics, chemicals, computers, telecommunications and internet based services including various aspects of e-commerce, including retail, advertising, consumer tracking activities, etc.
- Analyzed and traced R&D spending and other contributions made by parties to the development of inventions in a variety of industries including biotech and pharma, semiconductors, and consumer and electronics.
- Analyzed FRAND/RAND Licensing issues in the context of standard setting organizations and patent pools.

Antitrust Matters

- Analyzed various aspects of anti-competitive conduct under the Sherman Act and Robinson Act as well as under various state Antitrust Statutes. Investigated examples of tying arrangements, boycotts and monopolistic pricing and profits. Testified in federal, state courts and ITC proceedings regarding antitrust matters.

Integrated Circuits

- Performed extensive analyses and valuation of various aspects of semiconductor technology and semiconductor manufacturing, cleaning and inspection equipment. Analyzed several thousand semiconductor industry licenses regarding term and structure of such licenses and changes in licensing practices in the semiconductor industry. Served as expert and consultant on semiconductor industry licensing practices. Studied evolution and changes in technology, manufacturing and distribution of semiconductors as well as changes in industry capacity. Analyzed commodity and niche chip products, analyzed chipset, module, and motherboard interfaces, packaging including wireless and other configurations to enable data usage, transfer and storage.

Trade Secrets

- Valued trade secrets for transactional purposes.
- Analyzed trade secrets in the context of DOJ antitrust licensing guidelines.
- Analyzed trade secrets damages across a broad range of industries and technologies.

Enterprise Resource Planning

- Involved in numerous projects relating to design, implementation and performance of ERP systems involving the entire range of corporate performance and management from procurement, inventory and manufacturing controls to integrated financial reporting and planning for execution of system objectives.

Broadcast Media/Data Storage/Data Transfer

- Involved in broadcast rights relating to radio, TV, cable, satellite, and internet content. Rights have included sports, news, education programming relating to professional development, and career training.
- Involved in IP projects relating to valuation and licensing of technology relating to broadcast storage, distribution and retrieval such as internet, digital satellite, and terrestrial cable related to hardware and software technology for access to distributed content.
- Analyzed and valued network and data storage and transmission hardware and software solutions including internet, Ethernet, and extranet data storage and transmission.

Consumer Electronics

- Performed extensive experience in on a broad array of consumer electronics and components related thereto. Work has involved a broad range of products such as PC's, PDA's, cameras, video gaming systems, printers, copiers, monitors, projection systems, led, LCD and plasma screens, etc. I have analyzed trends

related to technology trends and market trends relating to manufacture, introduction, adoption and use and distribution of consumer electronics worldwide.

- Regarding video gaming systems have studied the history and evolution of video console systems over its more than 20 year development including the various console makers and different generation of products and technologies offered. Have studied market share shifts relating to competitor position. Have also studied license agreements and royalty structures for hardware and software. Have studied the development and shift in game graphics from first party to include second and third party games. Have studied the economic structure and profit model of the video gaming systems industry since its inception.

Gaming/ Gambling

- Performed valuations of gaming industry concessions in the US, China and Venezuela. Work performed analysis of market trends, projections and demographic characteristics of potential population of relevant consumers. Analyzed the scope and extent of concessionary rights and impact on valuation.
- Analyzed electronic gaming equipment and valued features and royalties for gaming equipment. Analyzed trends related to gaming equipment technology trends and market trends relating to manufacture, introduction, adoption and use and distribution of consumer electronics worldwide.
- Studied evolution of video gaming systems including video console systems and change in distribution of video gaming content. Analyzed market share shifts relating to competitor position. Have also studied license agreements and royalty structures for hardware and software. Have studied the development and shift in game graphics from first party to include second and third party games. Have studied the economic structure and profit model of the video gaming systems industry since its inception.

Integrated Circuits

- Performed extensive analyses and valuation of various aspects of semiconductor technology and semiconductor manufacturing, cleaning and inspection equipment. Analyzed several thousand semiconductor industry licenses regarding term and structure of such licenses and changes in licensing practices in the semiconductor industry. Served as expert and consultant on semiconductor industry licensing practices. Studied evolution and changes in technology, manufacturing and distribution of semiconductors as well as changes in industry capacity. Analyzed commodity and niche chip products, analyzed chipset, module, and motherboard interfaces, packaging including wireless and other configurations to enable data usage, transfer and storage.

Automotive/Trucking/Farm/Heavy Equipment Industries

- Worked on numerous projects involving car and truck (light, medium, heavy) and off highway, farm and heavy equipment dealerships. Performed analysis of dealership profitability including new and used product sales, service, body shops, parts and aftermarket services. Also analyzed floor plan financing, leasing, distribution and advertising practices. Analyzed industry standards and criteria for dealership ownership, transfer and performance.
- Performed valuation of truck, automotive, farm equipment, and heavy construction dealerships.
- Studied dealer performance standards in demographic and geographic markets using manufacturer proprietary data and industry statistics. Analyzed industry criteria across manufacturers for dealer

performance standards and manufactures practices for ownership, transfer, and termination to determine whether such standards are reasonable and consistent with industry practices.

- Analyzed trends in the retail/wholesale car dealership markets including rental fleet and auction house practices.
- Work on financing issues regarding sale of enhanced products such as credit life and extended warranties, floor plans, lease operations, loan origination, packaging and securitization of prime and sub prime paper sales as well as loan service portfolio operations and costs. Analyzed industry consolidation and profitability trends. Performed dealership valuations.
- Reviewed and analyzed licenses and valued technology relating to various automotive transportation technologies, including, ignition, safety, security, brake and engine components and systems and designs, micromotors, and designs and glass and battery technology, as well as breath alcohol detection and fleet logistics.

Telecommunications

- Performed numerous reviews and analyses of the telecommunications industry. Work performed included studies of wire line and wireless communications systems, including hardware, architecture, administration and related software. Regarding wireless systems, have reviewed and analyzed the adoption of various international protocol standards in the U.S., Europe and Asia (GSM, CDMA, TDMA, G3.0, G3.5, G4.0). Also analyzed data and voice transfer, routing, switching and networking systems, including hardware, architecture, administration and related software required to run such systems. Studied industry dynamics including telecommunications segment market shares by equipment manufacturer, investment rates, profitability and market transactions. Analyzed numerous licenses in the telecom industry. Valued telecom technology and negotiated telecom licenses.
- Performed studies relating to wireless cellular networks including satellite broadcast systems. Analyzed cellular concessions in the US and overseas. Analyzed various satellite based communication networks for radio, television in cellular systems. Analyzed cellular tracking systems for vehicle equipment, and service and repair operations.
- Analyzed cellular/wifi networks, speech codecs, CDMA 2000 and WCDMA essential patents in cell and smartphones, system and media management patents, application ("App") delivery and content management, touch screen technology and mobile display advertising technology for mobile devices.

Copyrights

- Served as court appointed expert appraiser to value proprietary software. Performed analyses relating to patent and copyright software issues for a variety of software and hardware related applications. Performed analyses relating to design specifications for hardware and software applications platforms and systems architecture involving industry specific applications. Analyzed and negotiated software licenses for numerous applications. Performed reverse engineering studies and COCOMO analysis for software applications. Performed studies relating to e-commerce including hardware and software platforms and supply chain management and financial reporting integration. Analyzed and valued software relating to mainframe data storage compartmentalization, compression and voice and data transmission.
- Valued copyrights for a variety of proposals including financing, asset purchases, and securitization.

- Involved in and performed studies of IT systems including requirements definition studies, selection of hardware and software specifications and system implementation and conversion. Also performed studies of the economics associated with the impact of IT systems on operational and financial performance of the subject company.
- Performed numerous valuations and analyzed and determined royalties for software across a number of different applications.
- Analyzed value and licensing of copyrights relating to music, education and business.
- Analyzed software copyright damages.

Energy/Mining

- Involved in various oil and gas and alternate energy technology projects. Performed valuation and strategic studies regarding new and emerging energy technologies including advanced oil and gas recovery and production techniques and alternate energy sources. Testified in patent and trade secret cases involving valuation and licensing of new and emerging energy technologies. Assisted in and engaged in licensing activities relating to energy technologies.
- Analyzed various oil field technologies including: on- and offshore rig design; well pressure control systems relating to drilling, completion, workover and snubbing, and well stimulation techniques.
- Performed analyses relating to well stimulation/well enhancement technologies, including hydraulic and matrix fracturing. Also analyzed secondary and tertiary recovery techniques for well enhancement. Analyzed drilling techniques such as directional and horizontal drilling for conventional on shore and offshore applications as well as for shale and coalbed seam gas reservoir production. Valued the manufacturing operations of a coiled tubing company which supplied tubing to the oil industry.
- Involved in licensing and valuation of mining technologies.

Bio/Pharma

- Involved in numerous projects for pharmaceutical and biotechnology companies involving chemical compounds, biologics and recombinant therapies and treatment regimens for multiple indications. Performed valuations of companies as well as specific drugs and patents. Valued and analyzed various indications in different stages of FDA clinical trials. Assisted clients in strategy, valuation and licensing projects involving IP rights related to proprietary technology. Also quantified damages related to patent infringement matters and co-ownership rights and development agreements. Studied terms of co-development and co-marketing agreements and made recommendations to improve client economics.
- For various treatment indications studied effects of on-and-off label usage on adoption rates and impact on ANDA applications. Performed extensive studies of R&D funding (through NIH and under collaboration agreements) and analyzed lead times for next generation treatment regimens given FDA approval time line and impact on competitive market share. Studied the potential effects of march in rights on licensing of biopharma technology.

- Performed studies of the nutraceuticals (vitamins, minerals, supplements “VMS”) industry including analysis of product manufacture, sourcing, packaging, labeling and distribution. Also analyzed profit margins and performed valuations of companies in this industry. Also performed studies regarding licensing practices in the VMS industry.

Examples of biotech/pharma and related subject matters:

- | | |
|---------------------------------|---------------------------------|
| • Advanced Macular Degeneration | • Hereditary Emphysema |
| • Allergic Rhinitis | • Human Growth Hormone |
| • Ankylosing Spondylitis | • Human Insulin |
| • Asthma | • Immuno-toxins/Immuno-therapy |
| • Blood Clotting | • Oncology |
| • Cholesterol Reduction | • Otitis Media |
| • Colitis | • Psoriasis |
| • Crohn's Disease | • Receptors/Inhibitors |
| • Coronary Heart Disease | • Rheumatoid Arthritis |
| • Diabetes Management | • Sepsis/Stroke/Brain Injury |
| • Genetically Modified Crops | • Tissue Plasminogen Activators |
| • Genomic Mapping | • Tissue Regeneration |

Medical Devices/Procedures

- Involved in licensing, valuation, marketing studies and litigation(breach of contract, patent infringement, theft of trade secrets, etc.) related to medical devices, diagnostic equipment and procedures and surgical supplies and medical equipment related to patient treatment and rehabilitation.

Consumer Retail

- Performed research and analysis of trends in various consumer retail products including consumer electronics, eyewear, apparel, shoes and sports gear and equipment. Valued trademarks and other IP rights for footwear industry. Valued footwear retail operations.

Security/Surveillance/Biometrics

- Performed studies and analyses related to a variety of security and surveillance products ranging from artificial optic technology to various biometric systems including fingerprint, voice recognition, signature, heartbeat and optical technologies. Work performed including valuation of these technologies and studies of industry trends including benchmarking. Also participated in auction process to sell biometric technology for client.

Trademarks/Lanham Act/Copyright

- Performed studies of trademark licensing practices and valued trademarks (and portfolios) related to consumer marks including electronics, food, products, services and apparel and industrial products and financial services. Testified regarding various trademark and Lanham Act matters. Assisted clients in negotiating purchase/sale transactions related to trademark portfolios including conducting competitive and

complimentary trademark licensing and positioning studies as well as valuation of comparable marks. Performed strategies assessment of trademark portfolio maintenance practices and licensing out strategies.

- Performed studies of corrective advertising and disgorgement of profits and other (FTC) measures of damages relating to trademark and traddress infringement and false designation of origin and false advertising under the Lanham Act. Trademarks analyzed have included consumer and industrial products and services including consumer electronics as well as financial sector and information technology products and services. Analyzed trademark licenses and transactions involving sales of various marks. Also evaluated damages associated with false advertising, false designation of origin and unfair competition claims. Performed analyses relating to customer confusion, corrective advertising and unfair trade practices.
- Performed valuation of copyright portfolios involving software, data management, manuals, process and procedures.

Other IP Matters

- Analyzed production and distribution costs relating to educational and commercial film rights involving various media
- Involved in and performed studies of IT systems including requirements definition studies, selection of data communication hardware and software specifications and system implementation and conversion. Also performed studies of the economics associated with the impact of IT systems on operational and financial performance of the subject company. Analyzed hardware and software requirements for multi-user configurations including WAN/LAN and internet connectivity.
- Engaged in various IP projects involving consumer products ranging from consumer electronics and food to pet and recreational products. Pet industry work has involved valuation and licensing of IP related to food additives, pet accessories and hygenic products.
- Performed extensive studies in the computer hardware and peripheral sector, including components. Analyzed trends in prices, volume and market share of PC manufacturers and related components including integrated circuits, chip sets, mother boards, etc.
- Involved in a variety of projects relating to the chemical industry including processes, formulation, and compounds. Work included evaluation of lost profits and reasonable royalties, and industry licensing practices. Negotiated licenses and performed valuations relating to chemical processes compounds and formulations.
- Performed numerous analyses regarding valuation and licensing of trade secrets technology, as well as impact on antitrust licensing guidelines.
- Performed studies relating to product liability issues related to electronics components, consumer electronics products and consumer and industrial products. Analyzed economic impact of defective products on manufacturers, retailers and consumers. Performed studies related to cost of settlements and design and implementation of such settlements.

Subject Area Expertise

Valuations

Performed valuations of various businesses including minority and control blocks of closely held businesses and marketability discounts. These valuations have included valuation of non-public companies, including warrants, options and phantom stock. These valuations of businesses and assets include manufacturing, distribution, retail and services sectors, but not limited to, the following:

- Agriculture
- Biotechnology/Life Sciences
- Car/Truck Dealerships
- Distributorships/Franchises
- Energy (producing and non-producing properties)
- Entertainment
- Financial Institutions
- High-end and Consumer Electronics
- Holding Companies
- Hospitals/Nursing Homes/Medical Practices and Facilities
- Income Producing Properties
- Industrial Gases
- Maritime/Admiralty/Jones Act Matters
- Medical and Professional Practices
- Mining/Extraction
- Patents, Trademarks, Goodwill, Naming Rights, Tradedress and Copyrights
- Resorts/Recreational/Casinos Properties
- Restaurants and Retail Establishments
- Security/Surveillance
- Software
- Transportation
- Telecommunications
- Waste Disposal

Additional Subject Area Expertise

Mr. Bratic has been engaged in numerous projects involving the subject areas listed below:

- Alter Ego/Corporate Veil
- Antitrust/Competition
- Audit, Accounting and Financial Reporting
- Bankruptcy Proceedings
- BOD Representation/Special Projects
- Business Interruption/Extra
- Expense/Betterment
- Compensation Studies
- Environmental and Natural Resources Damages
- Fiduciary Duty
- Fraud/White Collar Crime
- Leasing/Financial Institution
- Lender Liability
- Lost Profits
- Mergers and Acquisitions
- Personal Injury/Wrongful
- Termination/Wrongful Death
- Product Liability
- Securities Matters

Recent Speeches

"Economic Damages in Trademark Litigation" *University of Houston Law School*, November 10, 2016.

"Lanham Act Damages" *University of Houston Law School*, April 21, 2016.

"Trade Secret Damages" *University of Houston Law School*, March 29, 2016.

"Economic Damages in Trade Secrets Litigation" *University of Houston Law School*, April 21, 2015.

"Economic Damages in Trade Secrets Litigation" *University of Houston Law School*, April 15, 2014.

- "Economic Damages in Trademark Litigation" *University of Houston Law School*, February 27, 2014.
- "Financial Statement Analysis – Accounting for Lawyers" Andrews Myers P.C., February 4, 2013.
- "Economic Damages in Trademark Litigation" *University of Houston Law School*, November 20, 2012.
- "Economic Damages in Trade Secrets Litigation" *University of Houston Law School*, April 4, 2012.
- "Economic Damages in Trademark Litigation" *University of Houston Law School*, November 8, 2011.
- "Determination of Post Judgment Royalties and Damages Issues from Uniloc" co-presented CLE program at Locke Lord Bissell & Liddell, May 2011.
- "Economic Damages in Trade Secrets Litigation" *University of Houston Law School*, March 29, 2011.
- "Economic Damages in Trademark Litigation" *University of Houston Law School*, November 18, 2010.
- "Economic Damages in Trade Secrets Litigation" *University of Houston Law School*, April 7, 2010.
- "Economic Damages in Trademark Litigation" *University of Houston Law School*, November 17, 2009.
- "Economic Damages in Trade Secrets Litigation" *University of Houston Law School*, April 23, 2009.
- "Economic Damages in Trademark Litigation" *University of Houston Law School*, October 27, 2008.
- "Managing Intellectual Assets Hypothetical" Licensing Executive Society Australia Annual Conference, April 19, 2008.
- "Patent Damages " George Mason/The University of Texas School of Law, 2008 Advanced Patent Law Institute, Alexandria, Virginia, January 11, 2008.
- "Economic Damages in Trademark Litigation" *University of Houston Law School*, October 16, 2007.
- "Taking a New Look at Patent Pools: Use and Abuse", "The Subtleties and Complexities of Valuing Emerging Technology" and "Win/Win Strategies for Successful International Technology Collaboration and Exploitation" Institute of Intellectual Property Research and Development, India, August 6-8, 2007.
- "Strategic Litigation/Arbitration Considerations in Negotiating and Drafting Global License Agreements" Licensing Executive Society International Conference, June 18, 2007.
- "Economic Damages in Trade Secrets Litigation" *University of Houston Law School*, April 26, 2007.
- "Win/Win Strategies for Successful International Technology Collaboration and Exploitation" IPTEC-The International Marketplace and Conference for Technology Transfer Professionals, February 2007.
- "Economic Damages in Trademark Litigation." *University of Houston Law School*, November 8, 2006.
- "The Subtleties and Complexities of Valuing Emerging Technology." Licensing Executive Society Scandinavia Annual Conference, September 2006.
- "Determining Economic Damages in Trade Secret Litigation." *University of Houston Law School*, April 13, 2006.
- "Emerging Valuation Techniques in Technology Transfer." IPTEC-The International Marketplace and Conference for Technology Transfer Professionals, February 2006.

"Taking a New Look at Patent Pools: Use and Abuse." Licensing Executive Society Annual Conference, October 2005.

"Win/Win Strategies for successful International Technology Joint/Ventures-Partnership." Licensing Executive Society International Conference, June 2005.

"Determining Economic Damages in Trade Secrets Litigation." Continuing Legal Education Program sponsored by the State Bar of Texas, May 19–20, 2005.

"Employing and Circumventing the New Business and Future Damages Rule: How Certain Does Certain Have to Be?" University of Texas School of Law - The Damages Institute, October 2004.

"Damages in Cases Involving Cutting Edge Technologies." Law Seminars International-Calculating & Proving Patent Damages, Reston, Virginia, June 14, 2004.

"Economic Issues in Trademark Damages." University of Houston Law School, April 13, 2004.

"Treatment of IP Related to Standard." Licensing Executive Society 2004 International Conference, Paris, France, March 31, 2004.

"When Good Relationships Go Bad: Managing Default and Termination." American Conference Institute, Advanced Forum on Licensing Intellectual Property, December 9, 2003.

"Evolving Techniques in IP Portfolio Strategies: What Works?" The University of Texas School of Law, 8th Annual Advanced Patent Law Institute, Austin, Texas, October 31, 2003.

"Current Topics in IP Licensing and Litigation." Patent Lawyers Club of Washington & Northern Virginia, Reston, Virginia, September 8, 2003.

"Licensing and Competition: FTC/DOJ Views." LES Washington, DC Chapter, Washington, DC, May 2003.

"IP Valuation: Real World Transactions vs. Litigation." General Electric Crotonville IP Practice Group Meeting, Ossining, New York, April 2003.

"IP Valuation: Real World Transactions vs. Litigation." Berkeley Center for Law & Technology and The University of Texas School of Law, 3rd Annual Advanced Patent Law Institute, San Jose, California, December 6, 2002.

"Continuing Evolution of Patent Damages." The University of Texas School of Law, 7th Annual Advanced Patent Law Institute, Austin, Texas, November 1, 2002.

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Testimony during the Past Four Years

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- Alfonso Cioffi, an individual, and The Estate of Allen Rozman v. Google, Inc.
Case No. 2:13-CV-103
Filed 12.11.12

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Case No. DC-14-07297
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- DDB Technologies L.L.C. v. Fox Sports Interactive Media, LLC, et al.
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- Transocean Offshore Deepwater Drilling, Inc. v. Maersk Contractors USA, Inc.
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Case No. 1:09-bk-14766
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- Effective Exploration, LLC v. Bluestone Natural Resources II, LLC
Case No. 2:16-CCV-00607-JRG-RSP
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- Massandra Capital, LLC v. Windmill IV Partners, LLC ,Windmill IV Manager, LLC, Windmill VI Investments, LLC, f/k/a Windmill IV Investments, LLC, PCSM Management, LLC, CP Boerne I, LLC, CP Boerne II, LLC and CF Commercial Brokerage, LLC d/b/a Sana Antonio Commercial Advisors
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- Ilife Technologies, Inc., v. Nintendo of America, Inc.,
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- Evicam International, Inc., v. Enforcement Video, LLC d/b/a Watchguard
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- Infinity Headwear & Apparel, LLC, an Arkansas limited liability company v. Jay Franco & Sons, Inc., a New York corporation and Jay at Play, Int'l HK Ltd., a Hong Kong limited company
Case No. 1:15-cv-01259 (JPO)(RLE)
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- Intellectual Ventures II LLC v. AT & T Inc., et al
Case No. 13-cv-00116-LY
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- Sreenivasan Asokan, Chakravarthy Raghavan, Nanni Pidikiti, Rakesh Parekh, Ram Reddy, Madhubala Reddy, and Roger Lodge et. al. v. American General Life Insurance Company, a Texas company and subsidiary of American International Group, Inc ("AIG") ; and Does 1 - 50
Case No. 6:15-cv-2048
Filed 12.04.15

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- DSI Lending Resources, Inc. v. The PLS Loan Store of Texas, Inc., PLS Financial, Inc., and PLS Financial Solutions of Illinois, Inc. Formerly Payday Loan Store of Illinois, Inc.
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In the United States District Court for The Western District of Texas San Antonio Division

- Live Face on Web, LLC, a Pennsylvania Company vs. Daniel Moreno, Individually and d/b/a Full Service Vending Co.
Case No. 5:15-cv-00539-OLG
Filed 07.02.15

In the District Court of Leon County, Texas 369th Judicial District

- Linda Singleton, Individually and as the Independent Administrator of The Estate of Alfred A. Singleton, Deceased; Leighia Ardorin; and Angelia Williams v. Laronte D. Blance and Rockin D. Driveways, Inc.
Cause No. AP-15-405
Filed 09.28.15

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- Intellectual Ventures I LLC v. AT& T Mobility LLC, AT&T Mobility II LLC, and New Cingular Wireless Services, Inc. (Defendants); and Ericsson Inc. and Telefonaktielbolaget LM Ericsson (Intervenors)
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Filed 10.07.13

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- Intellectual Ventures I LLC v. T-Mobile USA, Inc. and T-Mobile US, Inc. (Defendants); and Ericsson Inc. and Telefonaktielbolaget LM Ericsson (Intervenors),
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- Intellectual Ventures I LLC v. Nextel Operations, Inc. and Sprint Spectrum L.P. (Defendants); and Ericsson Inc. and Telefonaktielbolaget LM Ericsson (Intervenors), Civil Action Nos. 13-670-LPS
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Filed 09.26.14

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- Intellectual Ventures I LLC v. Nextel Operations, Inc. and Sprint Spectrum L.P., and Ericsson Inc. and Telefonaktiebolaget LM Ericsson
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- Transocean Offshore Deepwater Drilling, Inc. v. Seadrill Americas Inc., Seadrill Gulf Operations Auriga LLC, Seadrill Gulf Operations Vela LLC, Seadrill Gulf Operations Neptune LLC.
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Filed 08.31.15

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- Intellectual Ventures I LLC and Intellectual Ventures II LLC v. AT&T Mobility LLC; AT&T Mobility II LLC; and New Cingular Wireless Services, Inc.
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- Apache Corporation; Apache Natural Resources Petrolera Argentina S.R.L. et al v. Pioneer Natural Resources Company; Pioneer Natural Resources Canada, Inc.; and Pioneer Canada ULC
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- Alfonso Cioffi, an individual, Melanie Rozman, an individual, Megan Rozman, an individual an Morgan Rozman, an individual v. Google, Inc.
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- Mobile Telecommunications Technologies, LLC v. HTC America
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- TracBeam, LLC v. T-Mobile US, Inc., et al.
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Filed 08.08.14

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- Plasti Dip International, Inc. v. Rust-Oleum Brands Company and Rust-Oleum Corporation
Case No. 0:14-cv-01831
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- HCC Insurance Holdings, Inc., v. Valda Flowers, Michael Remeika and Creative Risk Underwriters, LLC
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Filed 09.16.15

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- Ulti-mate Connectors, Inc.; Bruce L. Billington; Thierry Pombart; and Stephen R. Brockman, on behalf of themselves and all others similarly situated, v. American General Life Insurance Company; Sea Nine Associates, Inc.; Innovative Private
Case No. 8:14-cv-01051
Filed 07.09.14

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- Red Online Marketing Group, LP, d/b/a 50onRED v. Revizer LTD
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- Vincent Anthony Matassa and Adam Henry Robinson v. Brightoil Petroleum (USA) Inc.
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In the Superior Court of New Jersey Law Division Ocean County

- Joseph Fleischman v. Direct Energy, Gateway Energy Services Corporation, ABC Corp 1-10
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- Mobile Telecommunications Technologies, LLC v. Leap Wireless International, Inc. and Cricket Communications, Inc.
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Filed 10.30.13

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Case No. 2013-49851
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Filed 11.25.09

In the Court of Chancery of the State of Delaware

- OptimisCorp, Alan Morelli, and Analog Ventures, LLC v. John Waite, William Atkins, Gregory Smith and William Horne
Case No. CA8773
Filed 08.05.13

United States District Court for the Eastern District of Texas Marshall Division

- Mobile Telecommunications Technologies, LLC v. Samsung Telecommunications America, LLC
Case No. 2:13-cv-00259
Filed 04.02.13

United States District Court for the Eastern District of Texas Marshall Division

- Mobile Telecommunications Technologies, LLC v. Apple, Inc.
Case No. 2:13-CV-00258
Filed 04.02.13

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In the United States District Court for the Northern District of Texas Fort Worth Division

- Heil Trailer International, Co. v. Gavin Kula, Jerry Davis, Robert Troxell, William Lyman and Troxell Company, Inc.
Case No. 4:12-CV-00385
Filed 06.11.12

In the United States District Court for the Eastern District of Texas Tyler Division

- Profectus Technology LLC v. Huawei Technologies Co., Ltd., et al.
Case No. 6:11-CV-00474
Filed 09.09.11

In the District Court Dallas County, Texas 298th Judicial District

- Newton Research Partners, L.P. v. Shell Exploration & Production, Company; Shell Oil Company, et al.
Case No. DC-07-13697
Filed 11.20.07

United States District Court for the District of Delaware

- Nonend Inventions N.V. v. Spotify USA Inc., et al.
Case No. 1:13-CV-00389
Filed 03.08.13

United States District Court for the Southern District Court of Texas Houston Division

- Jay Martin Barrash, M.D. v. American Association of Nuerological Surgeons, Inc.
Case No. 4:13-CV-01054
Filed 04.11.13

United States District Court Northern District of California Oakland Division

- U.S. Ethernet Innovations, LLC v. Acer, Inc., et al.
Case No. 4:10-CV-03724
Filed 08.23.10

In the United States District Court for the Eastern District of Texas Marshall Division

- Optimize Technology Solutions, LLC v. Staples, Inc., Dillard's Inc., Drugstore.com, Inc., HSN, Inc., et al.
Case No. 2:11-CV-00419-JRG
Filed 09.15.11

In the District Court of Harris County, Texas 11th Judicial District

- Bryant Collins v. David Martinez, Jr.
Cause No. 2013-50115
Filed 08.26.13

United States District Court for the Northern District of Georgia Atlanta Division

- Equifax Inc., v. Versata, Inc.
Case No. 1:13-cv-00213
Filed 01.22.13

United States District Court for the Western District of Texas Austin Division

- DDB Technologies L.L.C. v. Fox Sports Interactive Media, LLC, et al.
Case No. 1:11-CV-01014
Filed 11.28.11

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In the District Court of Orange County, Texas 128th Judicial District

- Henry Travis Myers and Clayton Poullard v. Midwest Carriers, L.L.C., Bashir Duale Nuh and Williams Brothers Construction, Co., Inc.
Cause No. A 11 0487 - C

In the Circuit Court of Jefferson County, Alabama

- Tom Waugh and Seamless Pole, Inc. v. McWane, Inc. and McWane Global, et al.
Case No. 01-CV-2013-901820.00

In the United States District Court for the District of Delaware

- Linex Technologies, Inc. v. Hewlett-Packard Company, et al.
Case No. 1:11-cv-400-GMS
Filed 05.06.11

In the United States District Court Northern District of California

- Brandywine Communications Technologies, LLC v. AT&T Corp. and SBC Internet Services, Inc.
Case No. 4:12-cv-02494-CW
Filed 05.16.12

In the District Court Harris County, Texas 269th Judicial District

- Robert P. Alford, Ruth M. Alford and Randall D. Romack v. Monster Mosquito Systems, LLC, Leo J. Niekerk, Kemper Modlin and Aubrey "Don" Knudson
Cause No. 2012-37881
Filed 06.29.12

In the United States District Court for the Middle District of Florida

- Arthrex, Inc. and Arthrex Manufacturing, Inc. v. Parcus Medical, LLC
Case No. 2:10-cv-00151
Filed 03.08.10

In the United States District Court for the Middle of District of Florida Tampa Division

- PODS Enterprises, Inc. v. U-Haul International, Inc.
Case No. 8:12-cv-01479
Filed 07.03.12

The International Court of Arbitration of the International Chamber of Commerce

- Dresser-Rand Holdings Spain, S.L. (Spain) and Dresser-Rand Group Inc. (U.S.A.) v. Joseba Mikel Grajales Jimenez (Spain), Centauro Capital, S.L.U. (Spain) and Others
Case No. 20821/ASM
- Eagle Operating, Inc. v. Williston Hunter N.D., LLC
(District of North Dakota)
Case No. 4:11-cv-00067
Filed 08.19.11

In the United States District Court for the Southern District of California

- Pacing Technologies, LLC v. Garmin International, Inc. and Garmin USA, Inc.
Case No. 3:12-cv-01067-BEN-WMC
Filed 05.01.12

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In the United States District Court Middle District of Florida Fort Myers Division

- Arthrex, Inc. v. Parcus Medical, LLC
Case No. 2:11-cv-00694
Filed 12.15.11

In the District Court of Harris County, Texas 234th Judicial District

- Momentive Specialty Chemicals, Inc. v. Robert R. McDaniel, Avis Lloyd McCrary, Joshua C. Brown, and Preferred Sands, LLC, et al.
Cause No. 2011-51663
Filed 08.30.11

In the District Court of Harris County, Texas 80th Judicial District

- Gulf Coast Asphalt Company, L.L.C. and Trifinery, Inc. v. Russell T. Lloyd and John M. O'Quinn and Associates, L.L.P.
Cause No. 2011-61780
Filed 10.13.11

American Arbitration Association, International Centre for Dispute Resolution in the Matter of the Arbitration Between

- Chevron U.S.A. Inc. v. Sabine Pass LNG, L.P.
Case No. 50198 T 00902 12

Under the Federal Arbitration Act

- Magnum Hunter Production, Inc. and Eureka Hunter Pipeline, LLC v. Seminole Energy Services, LLC and Seminole Gas Company, LLC

In the United States District Court for the Eastern District of Texas Tyler Division

- Guardian Media Technologies, Ltd. v. AT&T Operations, Inc., et al.
Case No. 6:10-cv-00597
Filed 11.10.10

In the United States International Trade Commission, Washington, DC

- In the Matter of Reduced Folate Nutraceutical Products and L-Methylfolate Raw Ingredients used therein
Investigation No. 337-TA-857
Filed 09.10.12

In the United States District Court for the District of Arizona

- Oticon, Inc. v. Sound Design Technologies, Ltd. and Sebotek Hearing Systems, LLC
Case No. 2:11-cv-01874
Filed 09.23.11

In the United States District Court for the Northern District of California, San Francisco Division

- MedioStream, Inc. v. Microsoft Corporation, et al.
Case No. 3:11-cv-02525-RS-JCS
Filed 06.07.11

In the District Court of Clark County, Nevada

- Richard Suen and Round Square Company Limited v. Las Vegas Sands, Inc.
Case No. 04A493744
Filed 10.15.04

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In the United States District Court for the Southern District of California

- SPH America, LLC v. Acer, Inc., et al.
Case No. 3:09-cv-02535
Filed 11.09.09

In the United States District Court for the Eastern District of Texas Marshall Division

- Hitachi Consumer Electronics Co., Ltd., et al. v. Top Victory Electronics (Taiwan) Co. Ltd., et al.
Cause No. 2:10-cv-00260-JRG
Filed 07.22.10

In the United States Bankruptcy Court for the Northern District of Texas Dallas Division

- In Re: Hallwood Energy, L.P., et al., Ray Balestri, Trustee of the Hallwood Energy I Creditors' Trust v. Hunton & Williams LLP, W. Alan Kailer, Andrew E. Jillson, and Michelle A. Mendez
Case No. 09-31253-SGJ-11
Filed 03.01.09

In the County Court of Nueces County, Texas; In the County Court at Law No. 2

- John Jalufka v. Joshua E. Comstock, Individually, et al.
Case No. 2011CCV-60390
Filed 02.22.11

In the District Court of Harris County, Texas 270th Judicial District

- Araceli Alarcon Velazquez, Maria Eugenia Alarcon Velazquez, Robert Blaauw as Receiver for Zalinco Corporation, N.V. and Ocana Corporation, N.V. v. Gabriel Alarcon Velazquez
Cause No. 2006-51822
Filed 08.21.06

In the District Court of Harris County, Texas 61st Judicial District

- Structure Consulting Group LLC v. Corey Berg, M. Daryl Cote, Brent Kassing, Jennifer Mihalic, Julia Prybys, and Stacy Rodgers
Cause No. 2010-69070
Filed 10.18.10

In the United States District Court for the Easter District of Texas Tyler Division

- Secure Axxess, LLC v. ING Direct Bancorp, ING Bank, FSB d/b/a ING Direct USA, and Bank of America Corp., et al.
Case No. 6:10-cv-00670
Filed 12.16.10

Documents Considered

Bates	Beginning	End	Bates	Beginning	End	Bates	Beginning	End
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UBER	00006013	00006015	UBER	00022948	00022962	UBER	00023382	00023401
UBER	00006035	00006041	UBER	00022963	00022977	UBER	00023402	00023404
UBER	00006042	00006047	UBER	00022978	00023007	UBER	00023405	00023411
UBER	00006667	00006668	UBER	00023008	00023023	UBER	00023412	00023430
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Documents Considered

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Documents Considered

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Documents Considered

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WAYMO-UBER-	00026471	00026476	WAYMO-UBER-	00038713	00038717	WAYMO-UBER-	00043102	00043123
WAYMO-UBER-	00026722	00026723	WAYMO-UBER-	00038720	00038724	WAYMO-UBER-	00043124	00043148
WAYMO-UBER-	00026886	00026887	WAYMO-UBER-	00038726	00038726	WAYMO-UBER-	00043188	00043188
WAYMO-UBER-	00029355	00029357	WAYMO-UBER-	00038727	00038732	WAYMO-UBER-	00043353	00043358
WAYMO-UBER-	00031414	00031415	WAYMO-UBER-	00038737	00038742	WAYMO-UBER-	00043362	00043366
WAYMO-UBER-	00031431	00031432	WAYMO-UBER-	00038744	00038746	WAYMO-UBER-	00043437	00043470
WAYMO-UBER-	00031433	00031446	WAYMO-UBER-	00039433	00039433	WAYMO-UBER-	00043722	00043750
WAYMO-UBER-	00031447	00031447	WAYMO-UBER-	00039478	00039478	WAYMO-UBER-	00043956	00043983
WAYMO-UBER-	00031460	00031461	WAYMO-UBER-	00039532	00039533	WAYMO-UBER-	00044023	00044072
WAYMO-UBER-	00031462	00031463	WAYMO-UBER-	00039556	00039557	WAYMO-UBER-	00044108	00044171
WAYMO-UBER-	00031464	00031552	WAYMO-UBER-	00039661	00039661	WAYMO-UBER-	00044261	00044324

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Bates	Beginning	End	Bates	Beginning	End	Bates	Beginning	End
WAYMO-UBER-	00044325	00044337	WAYMO-UBER-	00050099	00050099	LAZ-BB	00000001	00000008
WAYMO-UBER-	00044338	00044401	WAYMO-UBER-	00050123	00050123	LAZ-BB	00000009	00000016
WAYMO-UBER-	00044589	00044626	WAYMO-UBER-	00050196	00050198	LAZ-BB	00000017	00000017
WAYMO-UBER-	00045518	00045521	WAYMO-UBER-	00050240	00050241	LAZ-BB	00000018	00000052
WAYMO-UBER-	00045724	00045725	WAYMO-UBER-	00050320	00050320	LAZ-BB	00000053	00000060
WAYMO-UBER-	00045885	00045886	WAYMO-UBER-	00050331	00050345	LAZ-BB	00000061	00000065
WAYMO-UBER-	00046262	00046262	WAYMO-UBER-	00050346	00050359	LAZ-BB	00000066	00000095
WAYMO-UBER-	00046264	00046264	WAYMO-UBER-	00050360	00050420	LAZ-BB	00000096	00000105
WAYMO-UBER-	00046391	00046417	WAYMO-UBER-	00050504	00050504	LAZ-BB	00000106	00000114
WAYMO-UBER-	00046451	00046452	WAYMO-UBER-	00051847	00051848	LAZ-BB	00000115	00000129
WAYMO-UBER-	00046625	00046632	WAYMO-UBER-	00054953	00054953	LAZ-BB	00000130	00000143
WAYMO-UBER-	00046633	00046635	WAYMO-UBER-	00055926	00055927	LAZ-BB	00000144	00000145
WAYMO-UBER-	00046636	00046640	WAYMO-UBER-	00055971	00055975	LAZ-BB	00000146	00000189
WAYMO-UBER-	00046678	00046678	WAYMO-UBER-	00055988	00055992	LAZ-BB	00000190	00000207
WAYMO-UBER-	00046679	00046679	WAYMO-UBER-	00056843	00056845	LAZ-BB	00000208	00000268
WAYMO-UBER-	00046694	00046697	WAYMO-UBER-	00056929	00056933	LAZ-BB	00000269	00000279
WAYMO-UBER-	00046742	00046742	WAYMO-UBER-	00057157	00057158	LAZ-BB	00000280	00000301
WAYMO-UBER-	00046973	00046977	WAYMO-UBER-	00057432	00057540	LAZ-BB	00000302	00000304
WAYMO-UBER-	00046983	00046988	WAYMO-UBER-	00057707	00057708	LAZ-BB	00000305	00000343
WAYMO-UBER-	00047060	00047061	WAYMO-UBER-	00058740	00058747	LAZ-BB	00000344	00000377
WAYMO-UBER-	00047062	00047063	WAYMO-UBER-	00059470	00059508	LAZ-BB	00000378	00000405
WAYMO-UBER-	00047165	00047165	WAYMO-UBER-	00064392	00064406	LAZ-BB	00000406	00000450
WAYMO-UBER-	00048246	00048248	WAYMO-UBER-	00066296	00066298	LAZ-BB	00000451	00000467
WAYMO-UBER-	00048412	00048437	WAYMO-UBER-	00079254	00079261	LAZ-BB	00000468	00000497
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WAYMO-UBER-	00049952	00049953	WAYMO-UBER-	00085776	00085776	Blattmachr	00000001	00000026
WAYMO-UBER-	00049959	00049961						
WAYMO-UBER-	00049967	00049972	OTTOTRUCKING	00000020	00000034	LEV_	002126	002126
WAYMO-UBER-	00049974	00049974	OTTOTRUCKING	00000035	00000050			
WAYMO-UBER-	00049976	00049976	OTTOTRUCKING	00000127	00000141	SANDSTONE	000001	000007
WAYMO-UBER-	00049980	00050025	OTTOTRUCKING	00002492	00002522			

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Deposition of Benjamin Ingram, August 16, 2017, with Exhibits 1430-1442.
Deposition of Brent Schwarz, August 15, 2017, with Exhibits 699 - 725.
Deposition of Brian McClendon, August 1, 2017, with Exhibits 170, 252, 256-264, 285, 294, and 392-470.
Deposition of Cameron Poetzsch, August 11, 2017, Volume 2, with Exhibits 203, 297, 299, and 605-612.
Deposition of Cameron Poetzsch, June 19, 2017, Volume 1, with Exhibits 250-291.
Deposition of Charlie Johnson, August 17, 2017, with Exhibits 1560-1565.
Deposition of Chelsea Bailey, August 1, 2017, with Exhibits 1227-1244.
Deposition of Daniel Chu, April 3, 2017, with Exhibits 1030-1033.
Deposition of Daniel Gruver, August 4, 2017, with Exhibits 494-525.
Deposition of David Meall, April 13, 2017, with Exhibits 5-8.
Deposition of Dmitri Dolgov 30(b)(6), August 8, 2017, with Exhibits 600-602.
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Deposition of Emil Michael, July 28, 2017, with Exhibits 392-393 and 399-417.
Deposition of Eric Meyhofer, August 18, 2017, Volume 1.
Deposition of Gaetan Pennecot, April 20, 2017, Volume 1, with Exhibits 100-104.
Deposition of Gaetan Pennecot, June 14, 2017, Volume 2, with Exhibits 86-99 and 105-106.
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Deposition of James Haslim, August 9, 2017, Volume 3, with Exhibits 570-586.
Deposition of James Haslim, May 4, 2017, Volume 2, with Exhibits 150-161 and 1060-1061.
Deposition of Jeff Holden, August 15, 2017, with Exhibits 299 and 801-836.
Deposition of John Bares, August 11, 2017, Volume 2, with Exhibits 650-682.
Deposition of John Bares, June 16, 2017, Volume 1, with Exhibits 162-171.
Deposition of John Krafcik, August 2, 2017, with Exhibits 1245-1270.
Deposition of Jur Van Den Berg, August 2, 2017, with Exhibits 471-493.
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Deposition of Lior Ron, April 19, 2017, with Exhibits 200-203.
Deposition of Maxime Levandowski, July 18, 2017, with Exhibits 113, 120, and 310-322.
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Deposition of Ningjun Qi, August 10, 2017, Volume 2, with Exhibits 587-593, 297, and 299.
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Deposition of Ron Medford, August 23, 2017, with Exhibits 1845-1850.
Deposition of Sasha Zbrozek, August 18, 2017.

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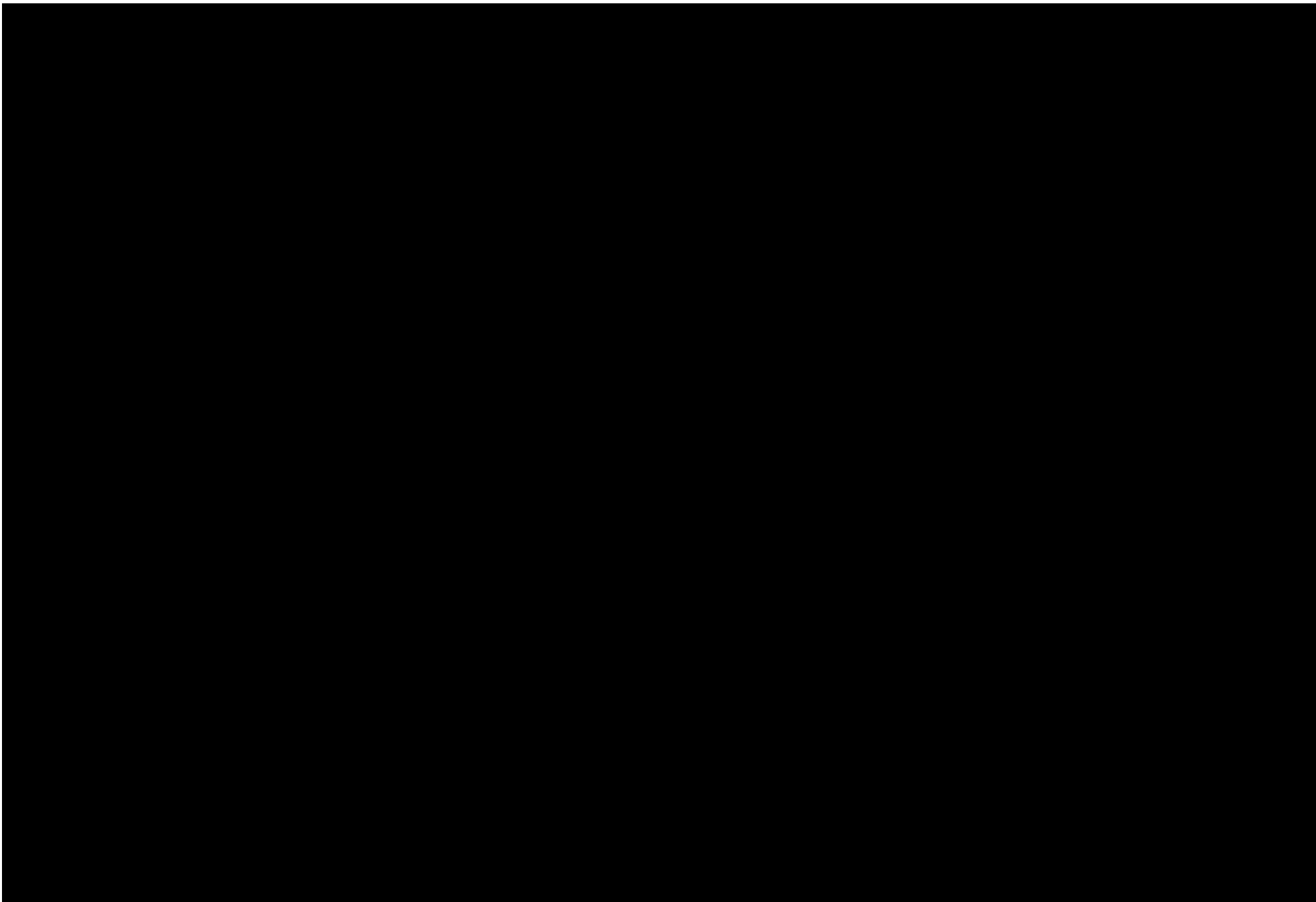
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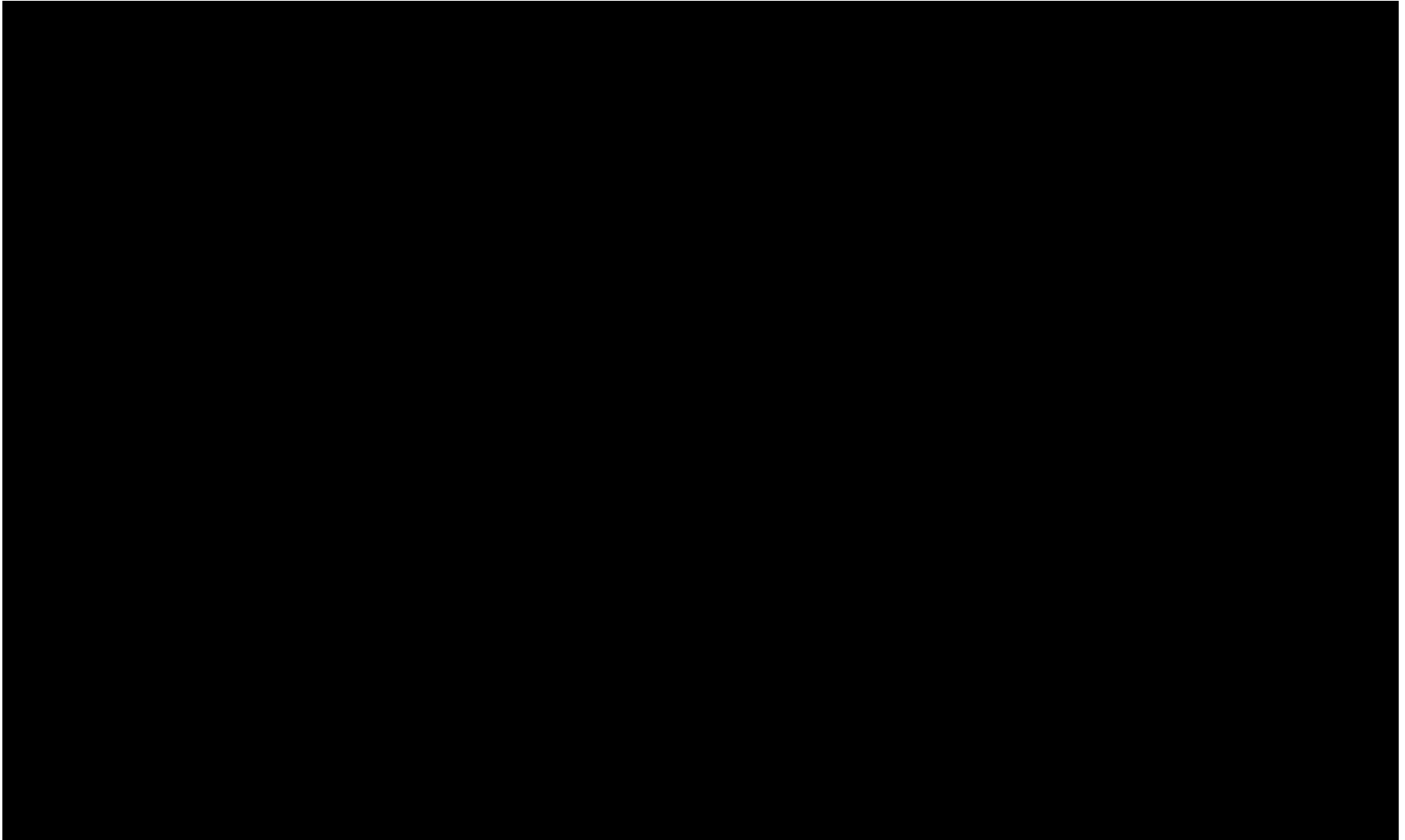
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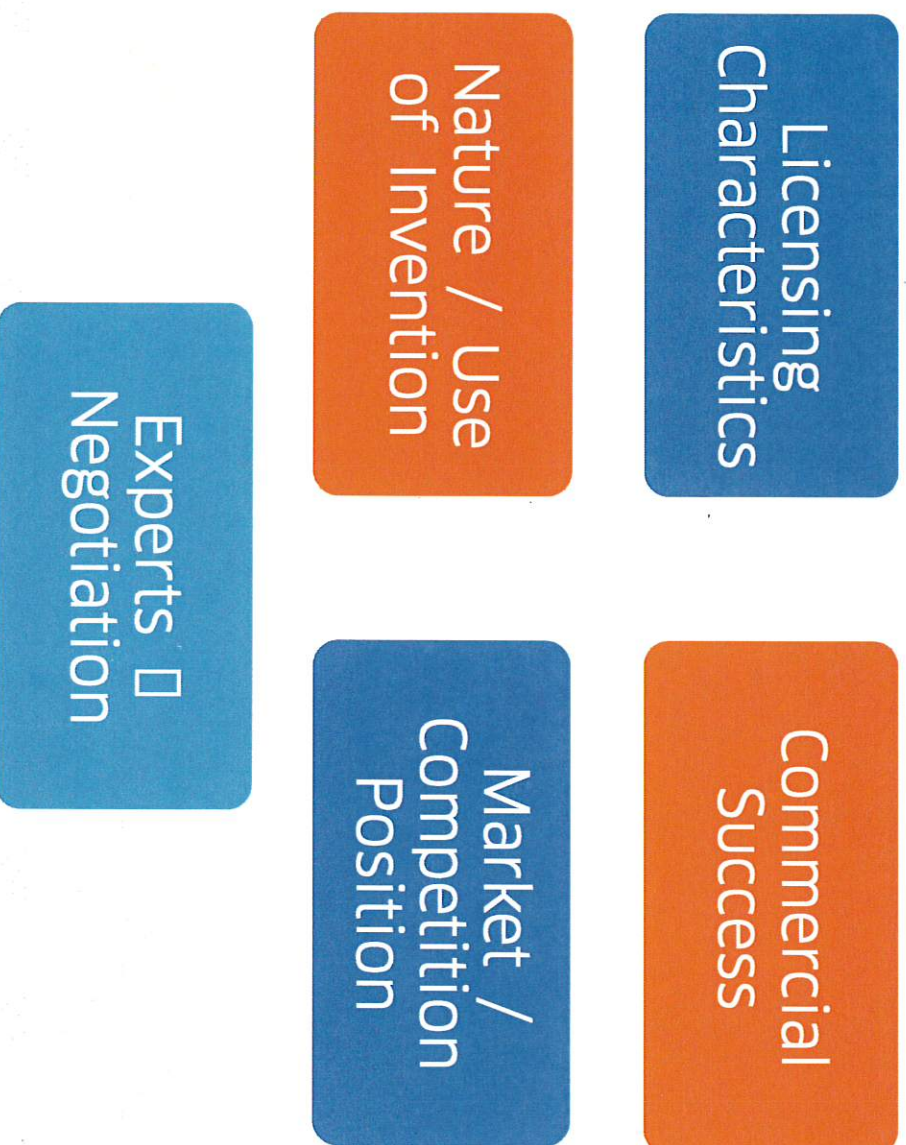


Appendix A

Qualifications and Education

- BA University of Pennsylvania 1975
- MBA Wharton School of Business 1978
- CPA in Texas since 1981
- Certified Licensing Professional
- 30 years real world-licensing and valuation experience
- 20 years public accounting
- 10 years partner at PriceWaterhouseCoopers
- Lecturer on intellectual property damages – University of Houston Law Center
- Editorial Board of 3 intellectual property publications
- Court appointed expert and examiner

GP Factors Grouped Into Buckets



Georgia-Pacific (“GP”) Factors

1. Royalties for Patent-in-Suit
2. Royalty Rates for Other Comparable Patents
3. Nature and Scope of License
4. Patent Owner’s Willingness to License
5. Competitive Nature of Parties
6. Non-Patented Sales from Use of the Patent-in-Suit
7. Duration of the Patent and the Term of the License
8. Established Profitability / Commercial Success
9. Utility & Advantages of Invention
10. Nature of the Patented Invention & Benefits to User
11. Extent of Infringer’s Use
12. Customary Royalty Rates for Use of Invention in the Business
13. Profit Credited to the Invention
14. Opinion of Experts
15. Hypothetical Negotiation














Source: *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970).

GP #15 Hypothetical Negotiation



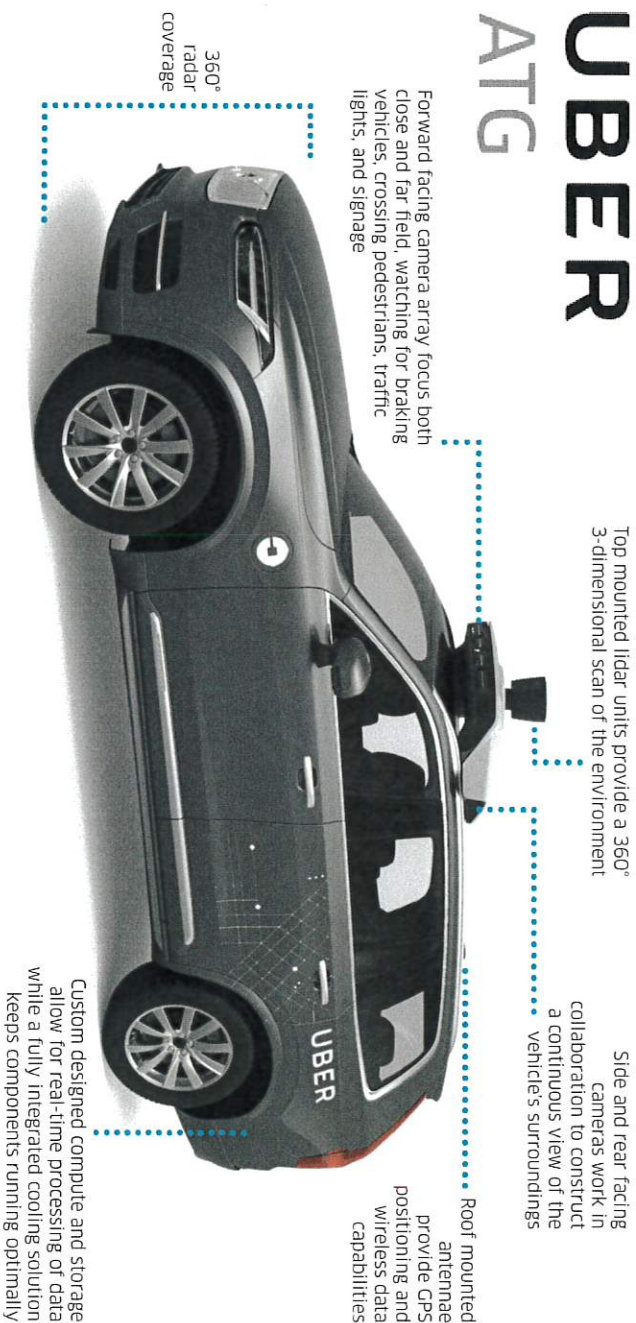
- Between December 2015 and August 2016
- Negotiation on the date of the first alleged misappropriation
- Assume Trade Secrets are valid and misappropriated
- Parties must agree to non-exclusive and non-restrictive license

Georgia-Pacific Factors: A Commonly Used Framework

Financial / Business	Technical	Licensing
<ul style="list-style-type: none"> Evidence probative of the extent and value of use  Established profitability of products made under patents  Portion of realizable profit credited to the patents  Commercial relationship of the parties  Extent of derivative product sales  	<ul style="list-style-type: none"> Utility and advantages offered by license  Benefits to users  	<ul style="list-style-type: none"> Royalties received by the licensor  Rates paid by the licensee for comparable rights  Customary industry licensing practices  Nature and scope of the license  Duration and term of the license  Licensors established policy 

Components

UBER ATG



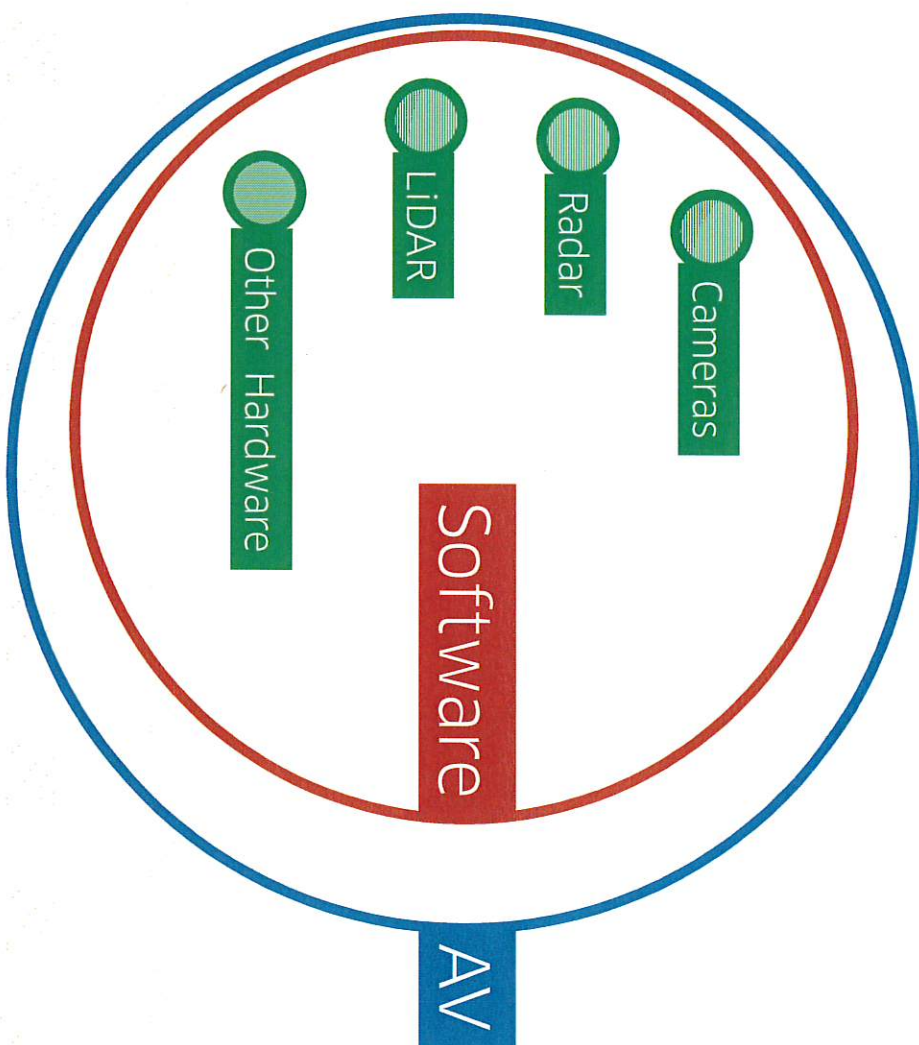
Self Driving Uber sensor suite

7 Cameras
1 Laser
Inertial Measurement Units

Custom compute and data storage
360° radar coverage

Advanced
Technologies
Group

LIDAR is a Small Piece of the AV



Wagner Damages Comparison

Velodyne Valuation
\$950 million

Wagner's Damages

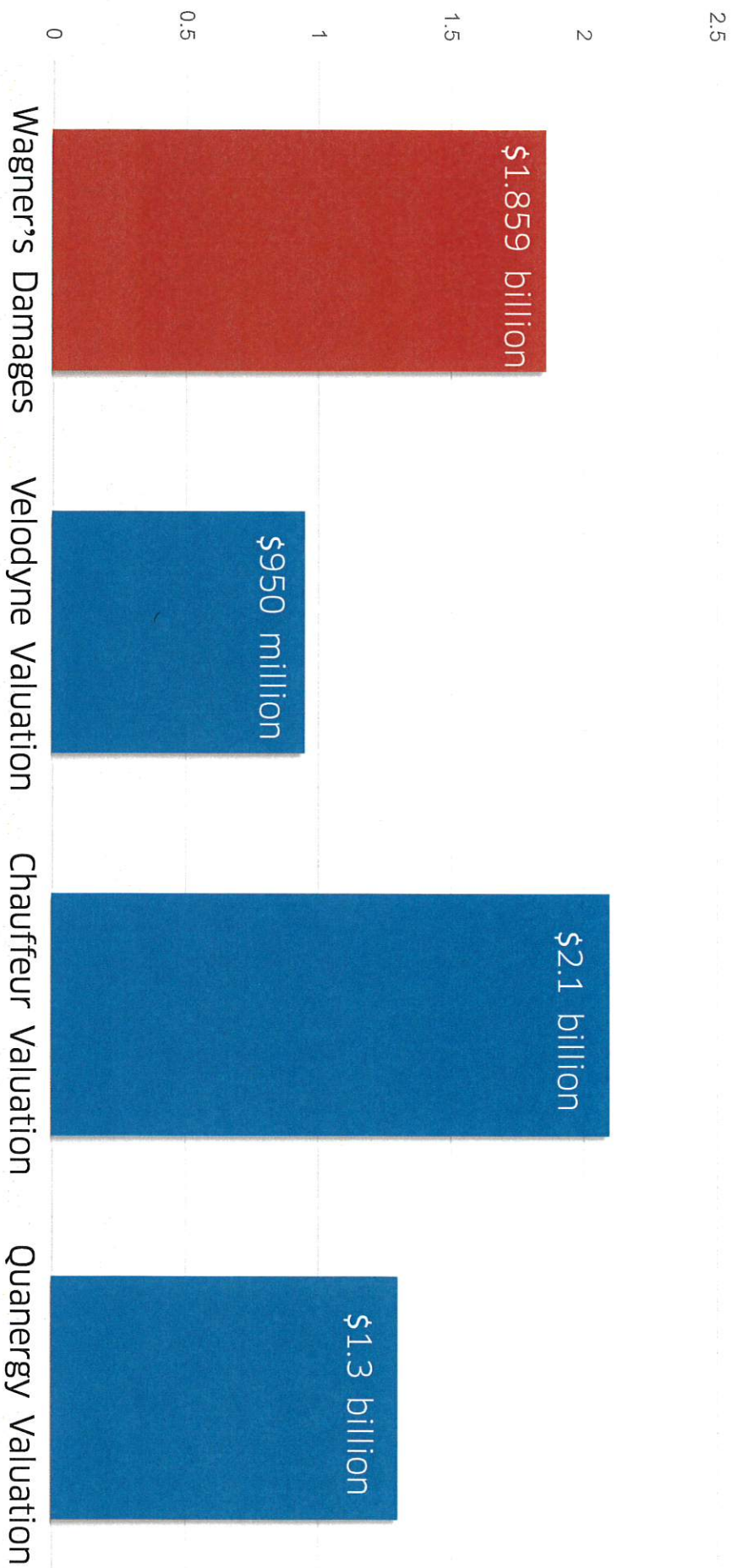
\$1.859 billion

vs.

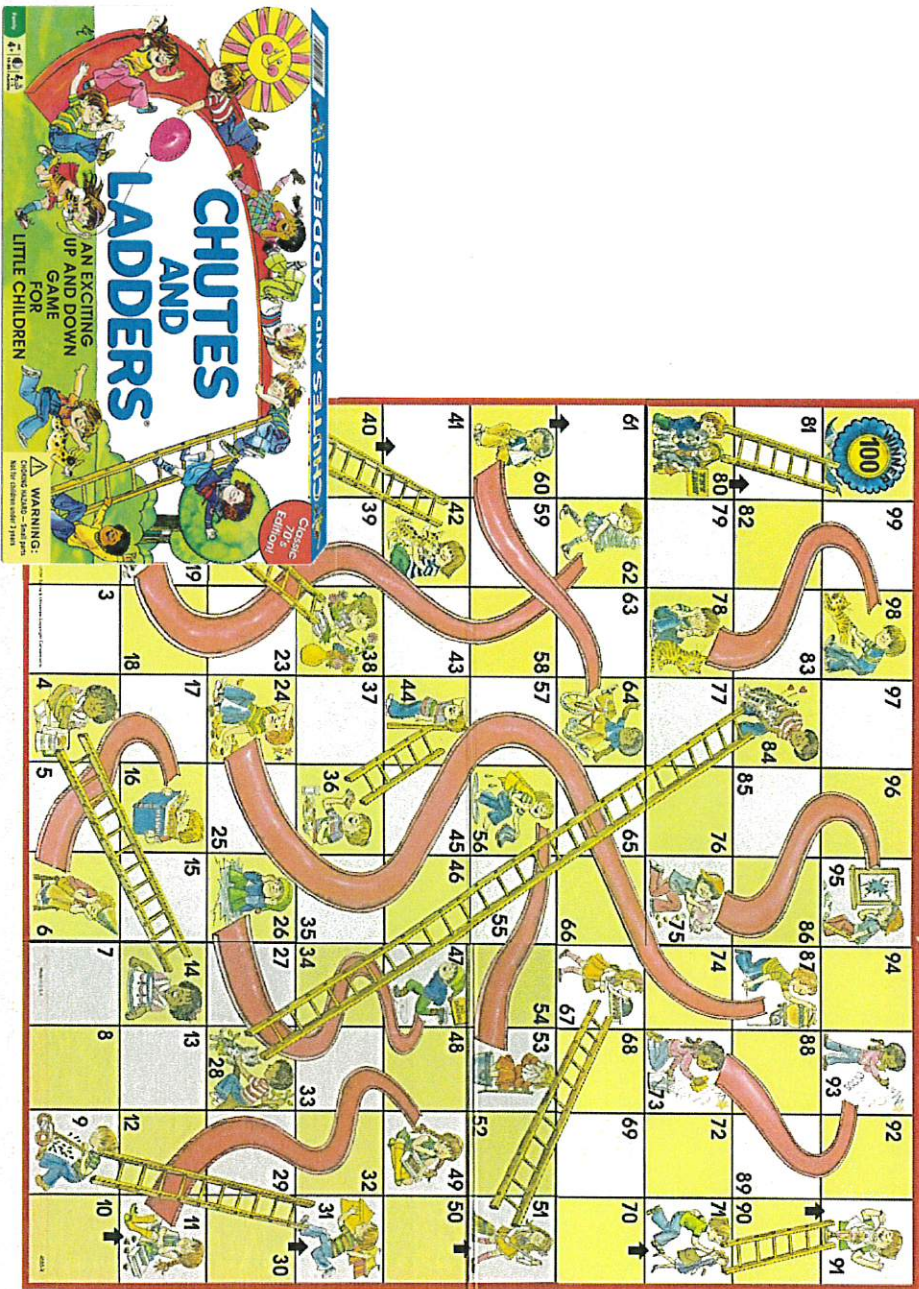
Chauffeur Valuation
\$2.1 billion

Quanergy Valuation
\$1.3 billion

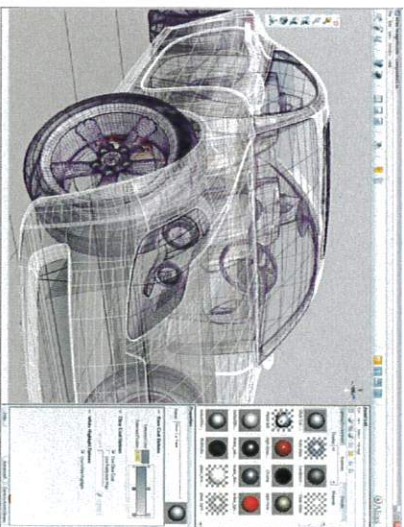
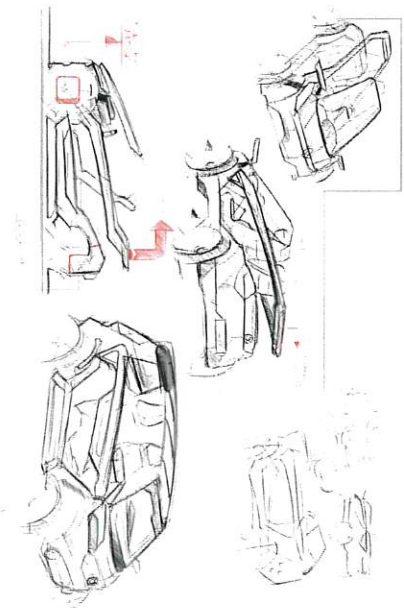
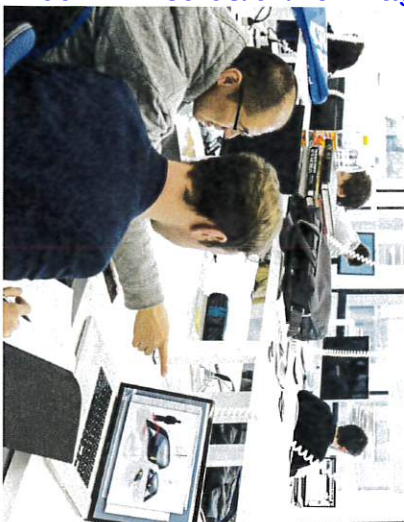
Wagner Damages Comparison



Wagner's “skipping ahead” Concept for Unjust Profits



Wagner's Concept for Saved Development Costs



Executive Summary

Note: Results are highly speculative, and depend on significant assumptions on Cost Curves and Pace of Technology Development. Output of this analysis require commentary and context.

Goal for Today's Meeting

- Reach consensus on appropriate number of AVs to order in 2019, and preview 2020

Background / Initial Results from December 2015

- **Team:** Cross-functional task force involving ATC Data Algorithms, Marketplace Dynamics, Operations Research, Growth Optimization, Strategic Finance, and ATC Strategy
- **Initial 2019 Baseline:** 7,000 Units (recommended we order 5k-10k units, w/ optionality for 10k-20k units)
- **Initial 2020 Baseline (For Reference Only):** 25,000 Units (recommended we order 15k-35k units, w/ optionality for 50k-75k units)

Revised Results

- **Revised 2019 Baseline:** 13,620 Units
- **Revised 2020 Baseline (to be further refined):** 42,375 Units

- **Key Changes:** Panel of experts approach; sentiment favored bull capabilities; delta between Base & Bull > delta between Base & Bear

2019 Recommendation

- **15,000 Units (+/- 2,500)**

Considerations:

- Capable of servicing a significant # of trips, which would have a material impact on the business (AV overall replacement rate = ~14.7%; replacement rate at peak demand = ~2.3x)
- Large capital outlay: ~\$2.1bn (15k units * \$154k per unit; assuming kit cost of ~\$129k & vehicle cost of \$25k)
- Volume recommended to ensure vehicles operate at high levels of utilization

Key Strategic Questions for Discussion

- Launch schedule? Competitive tactics? Marketplace health? How do we ensure are the lowest cost operator? Etc...

U B E R

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Note: Results are highly speculative, and depend on significant assumptions on Cost Curves and Pace of Technology Development. Output of this analysis require commentary and context.

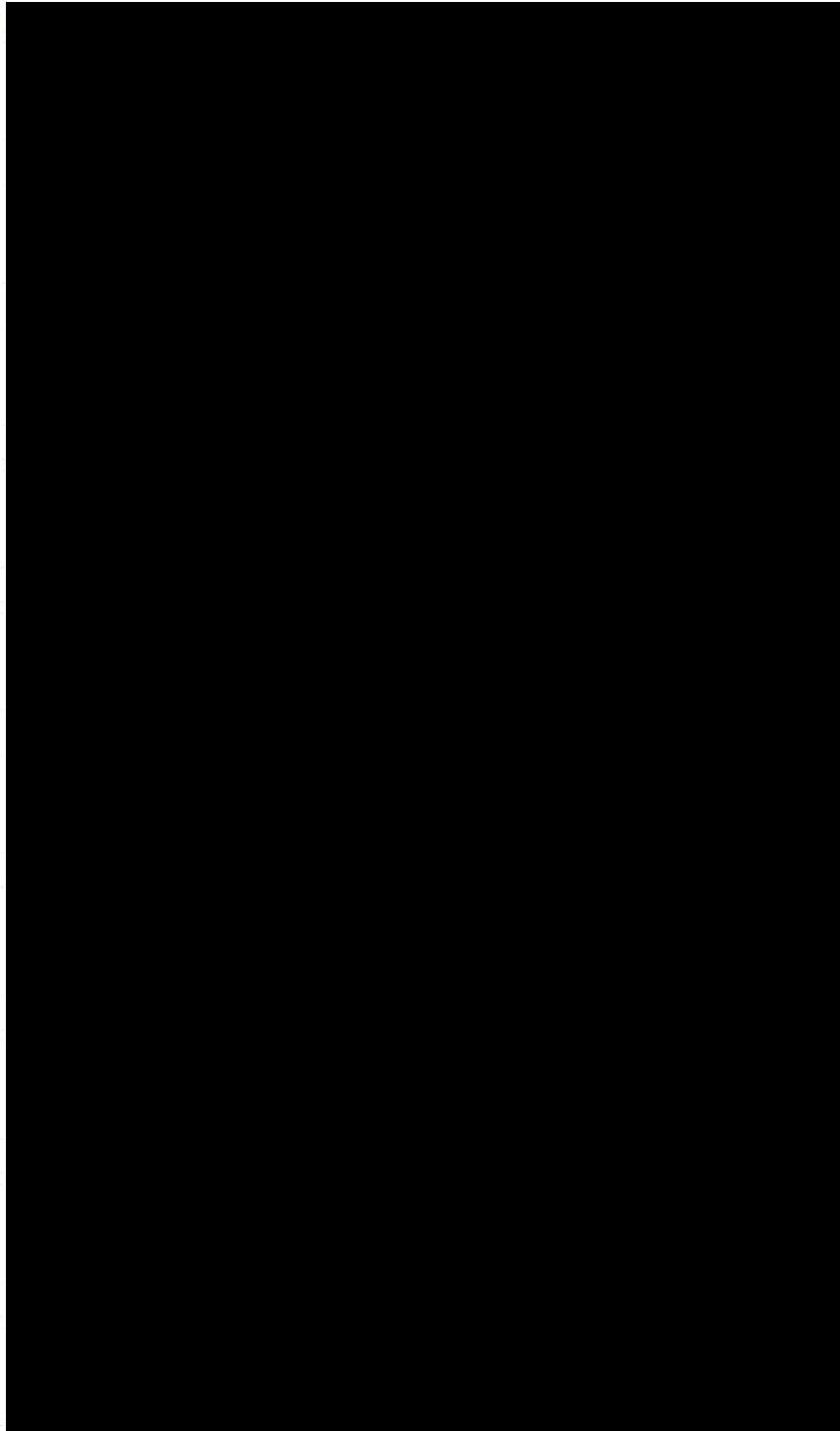


EXHIBIT H
FILED UNDER SEAL

EXHIBIT 33
FILED UNDER SEAL

HIGHLY CONFIDENTIAL – ATTORNEYS’ EYES ONLY

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9 Attorneys for Plaintiff WAYMO LLC

10 UNITED STATES DISTRICT COURT
11 NORTHERN DISTRICT OF CALIFORNIA
12 SAN FRANCISCO DIVISION

13 WAYMO LLC

14 Plaintiffs,

15 v.

16 UBER TECHNOLOGIES, INC.;
17 OTTOMOTTO, LLC; OTTO TRUCKING
18 LLC,

19 Defendants.

Case No. 17-cv-00939-JCS

**PLAINTIFF’S RESPONSE TO
DISCOVERY ORDER (DKT. NO. 2454)**

HIGHLY CONFIDENTIAL – ATTORNEYS’ EYES ONLY

1 Pursuant to the Court’s January 4, 2018 Discovery Order (Dkt. No. 2454) and December
2 11, 2017 Rule 502 Order (Dkt. No. 2363), Plaintiff Waymo LLC (“Waymo”) states as follows:

3 The only chat application generally approved for use at Waymo and Google is Google
4 Hangouts. The default setting for Google Hangouts used by employees at Waymo and Google is
5 “history off,” or “off the record.” Waymo and Google employees subject to a litigation hold,

6 [REDACTED]

7 [REDACTED]

8
9 DATED: January 5, 2018

QUINN EMANUEL URQUHART & SULLIVAN,
LLP

10
11 By /s/ Charles Verhoeven

Charles K. Verhoeven

Attorneys for WAYMO LLC

VERIFICATION

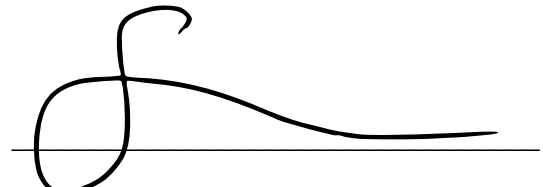
I, Scott Johnston, declare:

1. I am Director, Product Management at Google. I am authorized to execute this verification on behalf of Waymo and Google.

2. I am informed and believe that the matters stated in this Response are true and correct and, on that ground, allege that the matters stated herein are true and correct.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 5th day of January, 2017, at New York, New York.



Scott Johnston

EXHIBIT I

FILED UNDER SEAL

EXHIBIT 7

**UNREDACTED VERSION
OF DOCUMENT
SOUGHT TO BE SEALED**

From: Bryan Salesky <[REDACTED]>
To: Chris Urmson <[REDACTED]>
Sent: Sat, 31 Jan 2015 11:17:56 -0500
Subject: Re: Playing to win in Self-Driving Cars
Cc: Dmitri Dolgov <[REDACTED]>

Well thanks to iMessage I got all the confirmation I needed while on plane this morning :)
 Nrec/ri is officially raided. It's uber. And they've declared war on us. Woohoo.

On Saturday, January 31, 2015, Bryan Salesky <[REDACTED]> wrote:

One more thing: i actually wanted to extend my stay another week in mtv but am leaving for the burgh to do some networking Monday and Tuesday and double check facts. Please don't send till I give go ahead. I will get key details on magnitude of this play to make sure no one is overblowing it through the rumor mill. I've got about a half dozen sessions setup with robot CEOs in Pittsburgh.

Bryan

On Saturday, January 31, 2015, Bryan Salesky <[REDACTED]> wrote:

Lay it down captain. Amen! I'm glad you lose sleep every now and again to write this gold. It's exactly what is at the heart of frustrating us. You may want to give some bullets on team progress over the last year or two to remind him/them of what we have accomplished with such lean resources. Incredible gains on mpi. Building a polished car from scratch with a complete working biz model behind it. Having the only and best custom tailored sensor suite for sdc's with line of sight to automotive acceptable cost. And the team. The team is so amazing and incredible. We will see attrition in coming years if we don't play to win. Key sr folks that are the ticking heart of what we do. Well done Chris. You've got to tackle this and pressure test if google wants this product or not. Applying upward pressure is the only way that gets done.

I'm ready to go to war.

Bryan

On Saturday, January 31, 2015, Chris Urmson <[REDACTED]> wrote:

DRAFT- I'm thinking of sending to Sergey. Ignore late night stupidity (I'll edit) but send thoughts. I want to send to Sergey, and if I get no response send on to Larry.

UBER understands that self-driving cars are a clear threat to their business. As I'm writing this they are investing \$100M's of dollars to hire talent to jump start a self-driving car team in Pittsburgh. They are also engaged in conversations with OEM's and I believe are committed to spending a billion+ dollars to realize this technology.

We have a multi-year lead but the team they are assembling in Pittsburgh will be the second best team in self-driving technology. They are in discussion with [REDACTED] among other OE's. [REDACTED] is the most likely to move with them, as they are [REDACTED] know the power of this technology, and are committed to becoming a mobility company.

While we have invested in self-driving cars, over the last 9 months we have stopped playing to win, and instead are now playing to not lose. Symptoms of this show up as:

- Not believing in the team delivering:

[REDACTED]

○ We dwell for excessive amounts of time on any minor setback while not celebrating the overwhelming successes of the teams at X.

- Not committing to next essential next steps, even on favorable terms:

- We are unwilling to hire key people we need:
 - We are denying transfers of key personnel because [REDACTED]
 - UBER are hiring [REDACTED]
- We are placing process and control ahead of speed and innovation:
[REDACTED]
[REDACTED]

We have the opportunity to build another Google scale business, but by being unwilling to play to win, will waste the investment we have made so far. UBER is demonstrating committed action to counter what they see as a clear and present danger to their livelihood. They are making smart hiring decisions. They are committing dollars, and they are not letting legal or other bureaucracy get in the way (They are turning term sheets around in hours, not days as an example).

[REDACTED]

1. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

3. The best way self-driven vehicles will be used is as [REDACTED]

The chauffeur team has consistently demonstrated an ability to deliver amazing technology at an incredible rate, on an extremely lean budget. Allow me to turn my team loose properly - allow me to invest in the things that we need to do to get to scale. Here's what we need to do:

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

I love this company. I love the team that I've built over the last 6 years. I do not want to see Google's investment wasted. We've been doing the right thing - it's time to play to win, not just to avoid losing.

Chris

--

Chris Urmson | Self-Driving Cars | [REDACTED] [REDACTED]

EXHIBIT J
FILED UNDER SEAL

Appendix 9

Message

From: Drew Bagnell [dbagnell@uberatc.com]
Sent: 3/19/2016 1:16:34 PM
To: John Bares [bares@uberatc.com]; Brian Zajac [bzajac@uberatc.com]
Subject: Re: NewCo LIDAR specs

There absolutely are; we pointed this out a lot in Dragonfly design.

Options:

1) Continue down current path which will rely on camera to pull those out and have a backup ladar that is strictly better and can handle all our situations for even higher speed. Not enough density for understanding things far away, but enough to detect that they are there.

2) Improve our ladar quality at very narrow FOV, far range dramatically-- even to even detect objects against clutter; but have no fallback if our Plan A sputters, and a worrisomely sparse pattern elsewhere.

I think we need to bang smart heads against this and decide; there are definite pros and cons of each-- it's not a slam dunk, but it's sure better then not having options!

--d

On Sat, Mar 19, 2016 at 6:06 AM John Bares <bares@uberatc.com> wrote:

FWIW Drew. My California guy says that [REDACTED] I have some diagrams to share.

From: Brian Zajac [mailto:bzajac@uberatc.com]
Sent: Friday, March 18, 2016 8:07 AM
To: Drew Bagnell
Cc: John Bares
Subject: Re: NewCo LIDAR specs

Sounds good. Thanks for the update, Drew.

John, can you please send us the sanitized specifications for both LIDAR? I'd like to get Pete going on layout and performance simulation ASAP so that we can validate and steer their design requirements. Thanks!

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United States District Court Northern District of California	
Trial Exhibit 679	
Case No.	3:17-cv-00939-WHA
Date Entered	
By	
Deputy Clerk	

UBER00018068

- BZ

On Fri, Mar 18, 2016 at 11:00 AM, Drew Bagnell <dbagnell@uberatc.com> wrote:

Brian,

JB and I had a short, but really good, chat about this yesterday. He definitely sees the value in moving the 360 up--- the good news is that all of the work right now goes for either.

I think we all sit down and make this decision together in a few weeks based on the trade-offs based on the conversation.

--d

On Tue, Mar 15, 2016 at 3:21 PM, Brian Zajac <bzajac@uberatc.com> wrote:

Hi John,

Can you please send me the specifications for the NewCo LIDARs for distribution to a small "need to know" group of the Dragonfly team? We will start a conceptual layout and evaluation of their expected performance against our use cases and requirements ASAP. Our goal is to provide early feedback to help direct early development.

Also, Drew and I were wondering if the current priority of driving LIDAR vs. 360 LIDAR makes sense or can be changed. Would we rather have a Velodyne alternative sooner given it enables 45 mph operation and almost 50% of all Uber rides? Just a thought.

Thanks!

- BZ

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